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PRactical HINTS
ON
FLOWER GARDENING

IN
MADRAS,

BY
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MADRAS:
HIGGINBOTHAM AND CO.

1898.

MADRAS:
PRINTED BY HIGGINBOTHAM AND CO.,
165, MOUNT ROAD.



PREFACE.

THE following hints on gardening were originally published in the "Madras Times" and were intended, as most newspaper writings are, for the instruction or amusement of the hour. Friends, however, whose judgment I rely on, think that they are worth printing in another form. In doing so, I should remark, that although it seems presumptuous offering suggestions on Indian gardening in the second year only of its practice, yet, I hope that very many years' experience in making and cultivating my own garden in England, and some work as an old member of the Royal Horticultural Society, may have helped me to

make observations which could hardly
been made, without that assistance.

F. H.

St. Thome. *June* 1879.





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PRACTICAL HINTS

ON

FLOWER GARDENING IN MADRAS.

I.

REQUISITES FOR A FLOWER GARDEN.

A GREAT many residents in the Madras Presidency do not believe in an Indian garden. They believe in, and like flowers, and buy them. They are, if anything, anxious not to know from where those flowers come. A gentleman, resident in Madras, used to give so much a month for flowers. They came regularly every morning, and were very nicely set out by the servants and were pleasant to look at. It occurred to him one day to

enquire into the character of the flower vendor, and to ask from whence the flowers came? He soon ascertained that the supplier of flowers had "done" two years in one of Her Majesty's prisons, but he could not find out from what garden the flowers came. Under the circumstances, to use a conventionalism, he thought it better to try and grow his own flowers, and the outcome of that resolution gave him an experience, which he ventures briefly to submit to the public, in a series of papers, of which this is the first. Flowers, English flowers, can be grown in Madras, even where only brackish water can be obtained, all the year round. Of many English flowers, it may be said, that in India they are like the old household loaf, you may cut and come again, only cutting does the plant good, though it does not the loaf. Of these more hereafter. Much complaint is made of Madras dust; it is very troublesome, and disfigures many plants

and shrubs, but it is not so bad, as it is made out to be, if some little trouble is taken to wash and syringe. Supposing then, some one wanting a flower garden, to have a compound and a place to make a garden in, the first thing to think about is water. In many parts of Madras,—below the Nungumbaukum tank, in Vepery, near the Mount Road, and inland,—the water is fairly suitable for garden plants. In other localities, near the Adyar, at St. Thomé, and in that neighbourhood, the well-water is very brackish. As a rule, wherever the water in Madras is drawn from, it is not fit for plants without some exposure to the sun, and if brackish, must be so exposed, or it will kill them. The best plan to adopt is, to buy in Black Town bazaar, a number of old casks. They should cost about two rupees each. Cutting them in two pieces and bringing home will cost another quarter of a rupee each, and if the halves or two tubs which they form are

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tarred at the bottom (to preserve them from white ants) as they should be, that will cost about two annas more each. Supposing, some eight or ten of these tubs obtained, they should be placed round the well from which water is drawn, and filled every morning early. At about four in the afternoon, the water in them will have become quite warm, and a chemical change will be effected in it, which has greatly removed the deleterious effects of the salts the water ordinarily contains. If a green scum has risen on the water, that will only show the water has become so much more fit for plants, but the gardeners must be watched, or in baling the water out of the tubs to fill the watering-pots they will also take up this green scum, which will fill the roses of the watering-pots and give much trouble. Something more will be said about this when we come to the subject of watering.

The next thing, after water, is the garden

itself. If a garden already exists, and it is desired to renew it, the beds should be dug out afresh, and, if possible, some of the old soil removed and fresh soil obtained. At any rate, the beds should be dug and turned over a foot and half. In giving orders to natives, it is often well to adopt their metres, and a cubit, or the length from the elbow to the tip of the middle finger, will be as near a foot and half as is necessary for this purpose. Hereafter it is hoped to devote a chapter to the preparation of soils, at present it will be enough to point out that very often in the neighbourhood of Indian kitchens, and places where gram has been boiled, there will be found a heap of rubbish, largely composed of ashes, bones, and decayed refuse, which, when mixed with the red earth of Madras and some sea sand, makes excellent soil, in which to grow all sorts of flowers or flowering-plants. There are few compounds in Madras without these leaps,

which will be found invaluable if properly treated, and will help, at once, in the formation of flower beds. A great deal is thought of shade in India. Shade is of some value, but nothing interferes so much with gardening as the roots of trees, and the roots of some Madras trees, especially those of the *Casuarina*, will fill a flower-bed in an incredibly short time and prevent anything else growing there. As a fact, however, flowers do not want shade—at all events, those it is proposed to recommend in these pages, will stand a Madras sun in May, very well.

Supposing, then, we have the water and the position for the garden, the next thing to be considered is the labour. There are some native gardeners in Madras who understand their business pretty well, but they are very few, and the best plan to be adopted is to hire common workmen and to teach them. Boys of about 18 or 20 will soon learn the principal

requisites. They will know how to dig. A few lessons will make them expert at mixing soil, plotting, planting, watering and keeping the garden neat, although, as a rule, a woman will be found best for the latter purpose. The pay for men of this class should be three annas a day, for women half that sum. Very few tools will be wanted. An English spade and trowel and a mamotie will suffice for a moderately large garden. Besides these there must be watering-pots and if convenient a syringe. Watering-pots are best when made of zinc, but cheap and fairly good tin watering-pots may be bought in the bazaar. A great matter is not to buy them too large, if they are too heavy, when full of water, they pull themselves to pieces. It will also be necessary to have a good supply of pots for planting. These should be got ready of all sizes, and care taken that they are properly burnt in the kiln, and have the drainage holes in them

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open and clear. The best pots are made in Triplicane. The month of April is as good a one as any other, to begin and prepare the garden ; by this means the very first rains in May can be taken advantage of, and probably a whole year's time will be saved.





II.

THE FORMATION AND SHAPE OF FLOWER-BEDS.

THE shape and dimensions of flower-beds have often been determined for the amateur before he commences gardening, either by their having been made before, or from the peculiar shape of the compound in which he proposes to have his flower garden ; still, in India, where labour is so cheap, it is as well to make beds for oneself if that can be done. If possible, round beds are best, because they can be marked out from a common centre, and can always be kept correct, if repairs are needed, by marking out from that common centre. Suppose, for instance, it is possible to begin from the centre of the portico of a house. By

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means of a piece of string fastened to a peg driven into a spot close to the wall, circles may be drawn indefinitely, and half-moon beds, beds within parallel circles and others of like nature marked out, affording a large variety, yet uniform and on a plan which is always pleasing, if not too same. Flower-beds should not be too wide. Four feet is quite wide enough. If the beds are wider, it will be difficult to weed them, or stir the soil in them without treading on the mould, and making it hard again. Besides, in watering, it is a great advantage to do so easily from the path. Watering if done with a rose having very small holes is, of course, the best, but this takes up too much time. If the holes in the rose are large, as they must be, to get the watering over at the time of day most suitable for that operation, and the daily water is poured from too great a distance, as would be necessary if the beds

are too large, the falling water will break off, or very much injure, many of the most tender and valuable flowers. Watering, as will be shewn hereafter, that is proper watering, is the corner stone of Indian gardening. This cannot be done properly in very wide beds. If the garden has a wall, it will be found most useful. Some beds should be made parallel with the wall. They should be close to it, and about two feet in width. Never mind which way the wall runs, it can be made use of. If it runs east and west, and a bed can be made on the north side of it, this will be the best. Very many English flowers will grow and flourish all the year round in the comparative coolness the wall will give. If the amateur is obliged to put his bed on the south of the wall, he will find many Indian plants luxuriating in the heat, only he must be careful how he waters. The great advantage of walls is, they break the wind. Hundreds

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of plants will not bear a sea breeze, if they are planted in the open and exposed to one. If, however, they have a wall behind them to break the draft, they will flourish luxuriantly. Sometimes plants appear to be very perverse. They will not grow on one side of the house even with every imaginable care, but flourish when they are banished to the back to be out of sight. The real reason is, the difference of position suits them. They get the atmosphere they want. With some plants the morning sun seems every thing, with others the evening sun. As a rule, all creepers like the first few hours of sunrise, and then to have done with it. If an Indian jungle is carefully observed, it will be seen that the trees on the east side are much more covered with climbers than those on the west side. All the family of *hojas* require a morning sun ; they fade on the west side of a house.

Having found or made the beds, the next

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thing to be done is to provide some edging for them. Beds, without edging, are mostly untidy. The best and cheapest edging in Madras is made of burnt bricks, set on end sinking about seven inches of the bricks in the soil, and leaving one inch and a half above the surface. The bricks should be picked and well burnt. Such bricks cost about three rupees and a half the thousand, and two bricklayers will put in the edging to a great many beds in a day. The plan to adopt is, mark out the beds, fill them with soil as will hereafter be shown, and then put in the edging, but remember in digging the bed over, or in excavating it to fill in, to do both with a slight inclination inward. This will leave a firm edge, requiring a little cutting, which the bricklayer will do when setting the bricks. The bricks should be slightly rammed on the inner side when being set, and a little mortar between them will prevent their moving. Many gardens have

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edgings of green materials These sometimes look very well, but in India, where the florist has two great enemies to contend with,—one the want of water, the other the superabundance of insect life, any sort of edging, which will increase the latter plague and the former deficiency, cannot be recommended. Where there are green or live edgings, the flowers, next to or near them, will dwindle, from the edgings greedily drinking up the moisture the flowers so much require. Where the edging is of bricks or other similar hard material, the flower plants near the edging will be found to be the strongest, and the flowers the most fragrant and beautiful,—the edging has afforded the roots just that cool protection they wanted, while the flowers themselves have luxuriated, as flowers will, in the hot sun.

The materials the beds are filled with, should vary according to the plants required, but it is not often that, at first, when forming a garden

the florist can have those different soils ready, which will be mentioned in another chapter. The common soil of Madras is a red soil, and is by no means a bad foundation. To this should be added some of the heaps, spoken of in the last chapter, as likely to be found near kitchens in every compound. Also the amateur should try to obtain some good ashes. It is very probable that the milkman will have a heap of ashes and other things which he will be glad to get rid of. Many English flowers, such as verbenas, phlox, balsams and the like, will grow and flower most profusely in a soil composed entirely of ashes and sea sand. It is well, however, to have some stable manure mixed, providing it is old enough. Stable manure in India will become fit for plants in a quarter the time it would in England. The climate here favours the decomposition of nitrogenous manures, especially if wetted. Something more will be said about this when

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soils are treated of. In filling in the beds, care should be taken to pick out of the soil all roots of grass or growing weeds.





III.

SOILS AND MANURES SUITABLE TO FLOWERING PLANTS

WHEN it is considered that the different flowering plants, usually found in a garden, are not only of different kinds and of totally different habits, but also are indigenous to many other countries than the one we see them in, it is surprising that such a variety of flowering plants should succeed as well as they do, in one and the same soil and bed. Some soils, of course, more or less suit all plants. And it may be laid down, as a rule, that bones, if crushed or pulverised, will suit all plants. Bones are very much wasted in India. If the amateur florist will save all the

bones used about his premises, he can make for himself a most valuable manure at a very slight expense and with very little trouble. As many bones, as will be required for an ordinary garden, can be obtained by telling the cook to save them. The ants will clean them most effectually. When a sufficient quantity have been collected, give the garden woman a hammer and a hard stone, and let her break them up in the heat of the day, when she has not much to do. It will be difficult to have them broken into pieces shorter than about an inch. To every basket of these broken bones, add two baskets of ashes. Brattie ashes are the best. Wet the ashes and bones with water, after mixing them well, and put them in the corner of a godown or some sheltered place. The mixture may be used at once, but will get better and better every day. If it is wished to do the thing well, add sulphuric acid to the water in the proportion of one-fourth acid, and wet the

mixture with that. This will dissolve the bones very soon, and a powder equal to all the patent flower plant powders, sold in Covent Garden market, will be the result. Whenever the florist is potting anything very precious, he should mix two or three handfuls of this powder with the soil, according to the size of the pot, and he will find his trouble amply repaid by the extra beauty of the flowers and the health and strength of the plant. In the same way, if a plant is found to be standing still in a pot or in a bed, then cut away the soil all round, as if the plant was about to be transplanted with a ball of earth, put in some of this bone-mixture and almost certainly, the plant will in a short time revive. It was suggested in a former chapter on this subject, that probably a heap of refuse, largely composed of ashes and bones, will be found near the kitchen. Unfortunately, the crows carry away much fish debris and other things thrown out

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of the kitchen, still there is a good deal left in the ashes, and if this can be got, it should be collected and put in a heap. In India especially, all compost heaps, meant for potting or for refreshing beds, or dressing beds, should be kept in the shade if possible, in some old stable or godown. At all events, they should be protected from the sun and rain and kept damp by slight watering. Sometimes this is not practicable, as, for instance, where a compost heap is very large, but every effort should be made to have at least one small heap for ferns and delicate plants, kept in a cool and sheltered place. All compost heaps should be turned every now and then. An excellent compost can be made of kitchen refuse mould and sea sand, but it will not suit everything. There will, probably, be a great deal of charcoal, in small pieces, in such a compost, which will always keep the soil sweet, but it will run together very hard when watered, and become

like a sand mould. Many tender-rooted plants, like ferns, also some species of creepers and climbers, have too tender roots to pierce this sort of soil. They want an open soil; to make the soil open, a compost, such as above described, should have leaves mixed with it. Leaves are not scarce in Madras, but they are made so, by the habit native women have of sweeping them up to mix with cow-dung and form firing. Any one who wishes for really nice flowers must save his leaves, but as that will take some little time, it will be well to make the soil of his heap more open by adding to it some cocoanut coir rubbish. This can be got in Black Town for about two annas, a large rice bag full, and if mixed with about a bandy load of compost and allowed to remain *damp* for a month, it will be found to have rotted and loosened the soil and become a most excellent compost and very porous for tender-rooted plants.

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For greedy shrubs and plants, such as many crotons, some of the larger leaved ferns, gardenias, diffenbachias, alocashias and such like, a compost made of the red soil around Madras with a good mixture of well-rotted horse-dung is most useful. Only let the horse-dung *be* rotten. It is not an easy matter always to get this sort of manure even when there are a number of horses in the stable. First of all, the horse-keepers burn it to boil their horses' gram with, the sun drying it so quickly—that it soon becomes sufficiently inflammable for that purpose. This will not be prevented by allowing the horse-keepers fire-wood money to boil gram. That money will go regularly to the toddy shop, and the horse droppings and straw still into the fire, unless some better method of prevention is adopted. The best is, to have a hole or excavation made near the stables and to put the horse-dung daily into that, and to make the gardener wet

it well every morning. This will have a double effect, the droppings cannot be burnt, and the constant wetting will induce fermentation and rottenness. The dung should be wetted sufficiently to prevent its becoming white and mouldy. In adding horse-dung to beds or potted plants, care should be taken not to put too much. Many plants will grow at first very luxuriantly in horse-dung alone, but after a time, they will be found to fade and droop; if the undersides of the leaves are examined, they will be found covered with white spots which look like damp mould, and which, in fact, are fungus sporules generated from the horse-dung. It is difficult to get cow-dung in India; this makes the coolest dressing for flowers where procurable. River sand is a most valuable adjunct to the soils suitable for all sorts of flowering plants. It can be easily procured in Madras, and costs about three rupees a bandy load. The best comes from the

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north of the town, somewhere about half-way to Ennore, and is as good as any English silver sand. In ordering it, it may be as well to ask for the sand used in preparing the white chunam work, like marble, at one time so common in Madras houses. This sort of sand is too expensive to put into flower-beds, but should be kept by itself, ready to mix with the compost used for potting, at the time the potting of plants takes place. After a time the florist will have got together a quantity of leaves, and these, when well rotted and mixed with sand, will form the best soil for all sorts of delicate plants. There are few plants that will not do well in it. In filling in the beds, however, when beginning a garden, those beds should be filled with red soil, sea sand and horse-dung in which it is proposed to plant flowering shrubs, or those plants with particolored leaves, so common in India, and also, if well arranged, so very

effective. In other beds intended for annuals, such as verbenas, mignonette and phlox, the soil should be largely composed of ashes and sand. Some Indian plants are very fond of a mixture of lime rubbish. Panaxes and some ferns will grow best in a soil composed of half lime rubbish. This should be kept separate, as was recommended with regard to the silver sand, and mixed with the soil at the time of potting. The best soil for roses generally is the red soil of Madras with a mixture of bone dust. Goat droppings form a most valuable manure, but chiefly when mixed with water and used as a liquid manure. This last method of supplying food to plants is most valuable in the hands of competent persons, but as these hints are made more for amateurs and house-holders, than others, and as the writer has seen more mischief done from unwise plain watering than months would repair, he says nothing of liquid manuring

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In some cases it succeeds, but as often as not kills the plants it is meant to sustain.





IV.

PLANTS SUITABLE TO A MADRAS GARDEN

BFORE enlarging on the different sorts of shrubs and flowering plants suitable to a Madras garden, let us consider what the object of a garden should be, or at all events the object for which these lines are supposed to be written. One is, to have a neat and pleasant surrounding to the dwelling-house. Another, and more enjoyable object is—since it is only for a short time in the morning and evening the garden can be enjoyed in India—to have plenty of cut flowers, necessarily more abundant at one season than at another. The southerly winds which have lately prevailed bringing with them, first,

damp and then clouds of red dust,—have been most trying to the flower garden; still, by dint of cautious watering and plentiful syringing, let us say, what we have been able to obtain in these last days of this baking May week. Forexample, what can be picked to day, to fill two or three wall cornucopias, a centre vase four or five small flower glasses and half-a-dozen specimen glasses? In enumerating the flowers picked, the names of others will be added as in the garden, and the reader can thereby gather for himself some idea of the plants and shrubs suitable for his garden. Suppose it be early dawn, as the florist sallies forth, scissors in hand, with an attendant gardener, to cut the flowers which will be arranged after breakfast under superintendence when the gudeman has gone to office. First, we want some “backing” as it is called in Covent Garden. That is, some foliage, ferns, or grass, or green stuff. Well, we can get any

quantity of palm grass ; three or four pots of this kept growing in pans, filled with water daily, will grow all the year round. The grass is found wild all over South India, but the leaves with their palmated tops sell for six pence each in England ; they are thought to be so elegant as decorations at dinner, and at backs of wall bouquets. Then we can cut any quantity of red greens. This sounds very common place but the common red green and many other foliage plants, can be grown in India with much more effect than beetroot can be grown in England. A farmer friend of the writer was once walking with him in Hyde Park, and was praising the elegance of the ribbon borders and the way in which foliage plants were introduced. On being told that the effective red leaves were common beetroot plans, except that trouble was taken to procure plants that would not root well, as he wanted his to do, and which

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showed tinges of his favorite white mangold worzel, the farmer went off into the usual half-complimentary, half-depreciatory vehemence, visitors from the country often display towards Londoners and of their ways and management. For bouquets as for every thing else, if you want excellence, you must grow your green stuff rapidly. A quickly grown shoot is beautiful, if it is stunted and withered it is out of place in a flower vase. Next, let us look over the foliage shrubs. Many Crotons are ruined by being cut, but there are several varieties especially those which look like the japan laurel, that must be cut, that is to say, unless they are cut, down they come with the first rain. The slips of these judiciously cut out off the centre or from the sides so as to make the shrubs, shapely shrubs, strengthen the stems and they will stand up, however heavy the tropical showers may make their heads. The Indian box will afford many small

branches of a most delicate green, which will help to set up or even to centre the bouquet. In fact, if properly managed, Madras can always have plenty of this variegated foliage, than which, nothing is more effective even alone, and when mingled with flowers forms bouquets of unsurpassed beauty. Whilst the florist himself is cutting out these, for no native can do it properly, the gardener can be procuring branches of oleander, flowering stalks of the different kinds of *canna*, bunches of *coriopsis*, especially the yellow variety, bunches of *petunia*,—only do not let him cut the double petunias—bunches of ribbon grass, and a few heads of *zinnias*. The amateur himself should cut some flowers, such as *phlox* ; these will bear any quantity of flowers, the same plant lasting all through the season, if the flowers are cut carefully, using scissors. Also he should cut a few sprigs of a pretty blue flower (*plumbago Zalonica*) which with a good

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Zinnia and a head of Indian pink (*dyanthus*) are very showy in specimen glasses. Then we must turn to the verbenas. Even at the end of April, these flowers are abundant in the border under the north wall. Half a dozen nicely blown flowers of each colour will do. A few stalks of Indian jasmine to throw some white into the colouring, and there are as many flowers as can be arranged without its being a labor. A few roses must be cut. The tea roses are small, but still fragrant, but the common Indian rose is larger than ever, and if it has a sign of a centre, like a wild one, the odour is most delicious in the dewy morning. Still there are a number of foliage plants untouched. All the different *Eranthemums* which grow in Madras like weeds. *Leora coccinea* with its beautiful red flowers looking like wax. They will keep fresh in water for days. The *gardenias* which are revelling in the hot weather. *Durantha Elisea* and

Malvariscus, all these will do for another day ; white and blue lobelias are in great flower also, notwithstanding the heat and wind ; they had better be left in the beds, for they fade quickly in bouquets. All classes of the *brassicaceæ*, with flowers like daisies, bear the hot season well. So also does *cresandra*, a small shrub with salmon colored flowers, very common in Madras, and very showy if well grown. In all gardens in Madras there will probably be, and there should be, a number of plants in pots. These can be arranged so as to show off the flower beds and also to screen them from the wind, but no shrubs will do so well in pots as in the ground. That handsome shrub with red and green leaves, or rather with leaves of almost every color (*acolypha tricolor*) is a miserable thing in a pot, but is most conspicuous and effective if grown well in a bed. There is a hedge of this plant at the public gardens in Madras which looks

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very fine. So also the *Aralia*, which may be seen at every small bungalow, looks like one thing in a pot and another in the ground. There are two specimens of this plant opposite the palms at the public gardens, which are exceptionally well grown, but their foliage is nothing like as good as that of many shrubs of their same kind, elsewhere in Madras. It is difficult to lay down on paper any rules as to how to plant a garden, because it is impossible to give experience and taste to persons who happen not to have them, yet a few directions may be found of advantage. Do not put large trees into the beds. Those mentioned above. *Aralia*, *Acolypha*, *Hibiscus* and many other shrubs should be put at the back of the bed. If small plants are procured, they can be planted close, but the amateur, if he wishes for handsome specimens, should never allow one shrub to touch another. When they become large enough to do that, they must be thinned out.

Flower plants and very small flowering shrubs can be planted in front or at the side of these shrubs. Some have been mentioned above—*Euphorbias* are pretty little shrubs. Petunias will grow from out of the shade of shrubs well ; verbenas also and mignonette. Those beds meant for flowers only should be kept free from shrubs. Foliage plants, such as *colocus*, and that class, look very well for a short time, but they go off. Besides, only a few leaves of them are of use in bouquets, and for that purpose they should be grown singly.



V.

ON POTTING FLOWERING PLANTS

A GARDEN, to be a pleasure, should be always neat and tidy. Nothing looks more untidy than decaying leaves and flowers, and, as a matter of fact, nothing tends to keep plants longer in flower, than picking off all old flowers and not allowing plants to bear seed. If any seeds are wanted, they should be grown on one or two plants, selected and planted, out of the way somewhere. It is seed-bearing which wears out plants and makes them look dried up and unsightly. But besides this, a great thing in a garden is to have a constant succession of flowering plants. If a plant gets withered and past its work, or if the season for

one description of flowering plant is over, a great matter is to have another kind ready to put in its place. One of the great beauties of a good English garden is the constant succession of flowers. First, in the spring, bulbous flowers, crocus, tulip, hyacinth and the like. On some warm morning in May the garden appears transformed. The bulbs are all gone and the beds, as if by magic, in a night are filled with flowering geraniums, foliage plants and midsummer flowers. Again, later in August, the same transformation takes place, and dahlia, chrysanthemum and the "last rose of summer," suddenly bloom in the parterre. This change is managed by having the plants ready in pots. A great deal can be done in India in the same way, if not by completely changing the bed, yet at all events in freshening up and renewing plants, where they have died or become old and withered. Very fair flower-pots are made at Madras, but they are not so

good as those made in some parts of the Mofussil. One reason flower-pots often fail in Madras is, that garden owners buy them in the wet season, and even order them at that period. The consequence is, that they are burnt without being thoroughly dry, and are easily made rotten by constant watering. A well-burnt pot will last a long time. Whenever and wherever they are obtained, care should be taken not to buy pots with too small a circumference at the bottom. Some flower-pots in Madras have been lately made which are as large round below as above. This is wasteful of soil and wasteful of space. The surface roots of plants want more room than those below. Besides, if this plan was adopted for small pots, there would be a difficulty in getting the plants out with the earth attached to them when moving them. It is, of course, impossible to say what flower-pots a person may require for his garden, but for the purpose

of keeping a stock of flowering plants ready to fill up vacancies, the best size are pots about six inches in diameter at the top or mouth. Lateral drain holes are better than holes at the bottom. When flower-pots drain in the latter method, the roots of all sorts of plants find their way through and get into the ground under the pot. It is well, before potting commences, to have two heaps of broken bricks or tiles ready. One heap containing pieces about as large as small limes—the other composed of smaller pieces about the size of filberts. Bamboo sieves can be made by any mat-maker for about two annas each, with meshes of any size fancied. After the bricks, or tiles, or whatever is used for drainage, are broken up, two heaps of uniform sized pieces can be easily obtained by sifting the broken stuff, first through the large sieve, and then through the smaller one. Supposing then the pots to be ready and the broken pieces of bricks and

some compost and, silver sand as before mentioned, at hand, let us consider how to proceed to transplant into pots a lot of balsam seedlings. It is assumed the balsam seed has been sown some time before in a large pot, and that the young plants have got about four leaves. Commence by filling a dozen flower-pots. First, put into the bottom of each pot a handful of broken bricks from the large heap, then a handful from the smaller heap care being taken to put in enough to cover the drainage holes, if they are at the side. Give the flower-pot a shake, so as to settle the broken pieces together. Then, having mixed the sand and mould, fill each pot with the mixture to the brim. After doing this, give the pot another shake. Just as tea dealers may be seen shaking the tea into papers to make it settle; this will bring the soil a little below the surface of the flower-pot, as it should be, to allow of proper watering. After

the flower-pots are all thus filled, take a flat piece of bamboo which has been cut into the shape of a table-knife blade, and with it carefully take up and put into each pot, one or more of the flower seedlings from the pot in which they are growing; keep these thus transplanted, in a cool place out of the sun, and out of any draft and without much water for a few days. By this plan, a constant supply of young plants of every kind may be kept, without much trouble, and at little expense. All sorts of young seedlings may be treated in this manner, and almost all kinds of seeds may be sown, at all seasons to procure seedlings. If those seedlings were put at once out into a bed, they would not resist the heat of the present season for a day, and will not do half as well at any season as they would do if brought forward, to about a dozen leaves, in pots. The natives of India are very quick at learning all the manual part of gardening.

They will learn to pot many dozen seedlings in a morning, and, what is better, will learn to move plants either from one pot to a large one, or into a bed without breaking the ball formed in the pot or throwing the plants back a day. Native gardeners may be taught everything but judgment. The same plan of potting plants should be adopted in moving larger plants. Sometimes it is as well to have two men. If the plant is a large one, let one man put the palms of his hands on the soil of the pot, one palm on each side of the stem of the plants. The other man should then turn the plant over on to the palms of the hands of the first man and lift the pot off. The plant will then remain, but upside down, in the first man's hands, the ball of earth that has come out of the pot, being probably full of roots, and crowned on the top with the brick rubbish that had been put in the first instance into the flower-pot, to drain it. Pick this brick

rubbish off, and then slowly turn the plant round into the hands of the man who removed the pot, who should put it into the fresh pot destined for it, or into the bed as desired. By this means the plants never stop growing. They will always be healthy and will be strong to resist the attacks of insects and the change in the weather. After potting any plants keep them in complete shade for twenty-four hours, then put them out where they can get the morning sun. And in a day or two, if they are hardy plants, and the season is favourable, put them in the open, so as to get hardened. Do not give much water to potted seedlings, until they seem to be growing well. Then, and especially if in the opening, they should be watered freely every evening, as plants in pots get very dry in a short time. Sometimes large shrubs in pots are as well if not moved. Their roots have got through the bottoms of the pot into the grounds, and

it would throw them back very much to move them. They will be much benefitted, if all the soil round the edge of the pot they are growing in, is removed. Cut away as deeply as you can a little ditch of the width of an ordinary garden trowel. As a rule, the soil in the pot will be so full of fine roots, that there will be no difficulty in cutting as narrow a ditch all round the inside of the pot as you wish. The fine roots will keep up the soil. Throw away all this earth that you have dug out. It will be completely exhausted of all nutritious qualities for the plants and in place of it put in a mixture of the best stuff you can afford, bone dust, if you have it, and compost mixed or else compost alone or even common red earth. Anything to give the roots a change of food that they may send some sap to the branches and leaves. Large crotons and shrubs treated thus twice a year will well repay the trouble.



VI.

WATERING A FLOWER GARDEN

IF we are to believe many speakers and writers on the subject, water is the one thing wanted in India. Water without stint, and at all seasons, we are told, will turn the seeming Sahara into a joyful garden. There is some truth in this, but not the whole truth. The application of water to growing vegetable life in the tropics, is undoubtedly of the greatest use, and a proper system of irrigation will produce results simply astounding. In an Indian garden, it is almost possible to do without everything but water, and yet it is astonishing what a number of plants are killed by want of judg-

ment in watering. In a former page, something was said of the manner in which water should be prepared for use when watering flower plants. If the florist has access to a tank exposed all day to the rays of the sun, he will be fortunate, and will find that water well warmed and ready for use at the time watering should take place,—that is about four o'clock in the afternoon—without any further trouble. If, however, only well water is available, then, means should be taken to expose such water to the sun, either in tubs as suggested in the first chapter of this little book, or in earthenware pots. These last may be procured of considerable size. They are used by the natives to bathe in, and very large ones only cost from four to eight annas each. They are much cheaper than wooden tubs, but are very apt to go to pieces after some use. The constant soaking with water rots them, unless very well burnt, and the water,

just when wanted, cannot be procured. Nothing catches cold more quickly than a plant. If flowers are watered with chilly, brackish water they will never grow well ; it is because they have caught cold. Then as to the quantity of water to be applied. It is better to give plants, in beds, a good soaking every third day, rather than a moderate watering every day. But in this, care must be observed ; sometimes beds will require more watering in December than in April and May. There is often more evaporation in December, cool as it may be, than at other times. The damp hot winds, which are so trying in April and May, do not dry up the beds at that period in anything like so rapid a manner as when the wind is in the North. Again, some plants will take water twice a day ; once a week is sufficient for others. It must not be supposed that native gardeners will not learn all this. If left alone, they will

dash the water out of chatties on to the roots of plants—perhaps breaking the fall with their fingers, and wash all the soil away, but they are wonderfully observant and quick in any matters relating to watering, if temperately checked. There are native gardeners who never will learn. Such had better be sent away at once. One thing it is difficult to teach them, and that is never to water in the sun. Watering in the early morning is generally fatal to flower plants, but watering at all in sunshine is most hurtful. If there is a large garden to water, the gardeners will want to begin early, to get the work over. It may be necessary to allow this. If so, use a little judgment and begin to water where the house or a tree has thrown a shade. If watering-plants in flower-beds requires watchfulness and care, much more does watering-plants in pots, and in conservatories or pandals. Hundreds of plants are lost from

want of the knowledge when and how to water. The native gardener does not know if the plant is sickening from drought or from rotting. Generally it is from the latter cause. The water cannot get away from the pot. There is no drainage. Either the roots of the plant have choked it, or, what is more likely, worms have done so, and yet they pour more water. It is very difficult to restore a plant that has commenced to fade from rotting at the roots. The only plan is to move it at once, and then to water most sparingly. Very often it is as well on some days only to water the leaves of plants in conservatories. When the roots are watered, it should be done thoroughly; soaking the pots well, then for one or two days or longer, sprinkle the leaves only. When sowing flower seeds, do so in damp mould, and do not water until absolutely necessary. If the seeds have been sown in a properly shaded place, they will come up

before there is any necessity to water. Having once thrown down their roots, they will not be displaced or washed away with water, but still water sparingly. Some cuttings require a great deal of water. Almost all milky sapped plants, such as *ponsettias*, do so. Again, other plants, such as *colours* *carolina* and dry cuttings do best with very little water. As a rule, more harm is done by overwatering everything in Indian gardens than by insufficient watering. Good water, that is water that has become warmed in a tank, or in pans, or tubs, is the life of plants, but it must be given with care.

If good water cannot be procured, more care is wanted and less profusion. Watering-pots are now so common about Madras that it is hardly necessary to recommend their use instead of a chatty. Also the more time that can be spared for watering the better. If the rose of the watering-pot has small holes, this

time must be given to the work, but it is seldom the time can be spared.





VII.

CREEPERS AND CLIMBERS

THERE are few branches of floriculture in which gardeners at Madras have been more successful than in the cultivation of flowering creepers and climbers. Almost all the very beautiful flowering plants of that class, seen about Madras, are indigenous to some other country, and have only become acclimatised to Madras by use and culture. The common way to grow creepers is on a kind of arbour or arch, made of bamboos, and common as it appears, most probably that method gives the plant fairest play, and afford it the opportunity of producing flowers towards the sun. Still, this is a very common

plan, and the flowers and plants cannot be closely examined when growing high in the air, nor can the plant when flowering be moved into the verandah, if desired. The better plan is to grow creepers in pots. These plants may be divided into two classes. Those which are grown from seeds, and those which are propagated by cuttings or layers. The latter are the most beautiful, and the flowers they produce smell the sweetest. Creepers, however, which are grown from seeds are so easily raised, and managed, that a word or two on that head may be interesting. The plan to adopt is this. Fill a fairly good-sized flower-pot with good mould, and sow some twenty seeds in it. Most likely they will all come up, as creepers of this class seed will. A day or two after the seeds are up, pull up and throw away half the plants, selecting those that are grown thick, and leaving the rest evenly over the surface of the pot. In a few

days more, pull up and throw away the rest of the plants, with the exception of three or four. These should be left in the shape of a square or triangle, each plant being at the supposed angle. When the plants get about four inches high, make a frame-work in the flower-pot for the plants to climb on. Very often, creepers thus grown, in two months will be full of flower, and if placed on a table in the verandah, or in a room, will, for a day or two, afford great pleasure and be a charming variety in the adornment of a house. Of course, great varieties of seedling creepers may be grown in this way. Other sorts of creepers, such as *Hojas*, *Stephanotis*, the larger *Thaumburquia*, and a long list of most beautiful plants, are much more difficult to propagate. When they do grow, they last much longer. These last, whether grown from cuttings or layers, should be struck in small pots, and moved to larger ones when they have made a good start.

Moderate size flower-pots are most suitable. No doubt, the plants will do best in a very large pot, as is frequently seen in Madras, but they are easiest moved in a small pot, and it is surprising how large a creeper can be grown in a convenient sized pot. If carefully trained on a suitable frame they will form, if moved when in full flower, a great addition to the ornamentation of a room. Bone-dust is a most valuable manure for creepers, especially if they have a milky sap. In very many gardens in Madras, creepers are grown in pots with frames in them, something like a fan; on this frame they are trained, and do exceedingly well. Moreover, the flowers are able to turn to the sun and also can be seen easily, which is a great advantage. Another thing is, plants grown in this way can be refreshed, from time to time, by manuring their roots, which cannot be done if they are grown on frames which fill up all the surface of the soil in the pot. At

the public gardens in Madras, some creepers and roses are now trained in a very neat manner on circular frames, made of bamboos, and these will, if the plants flower all round, be very showy and an improvement on the fan-shaped frame. Round frames like these are recommended for seedling creepers; whether they will answer for other sorts remains to be seen. In training creepers, care should be taken to do so very often. They will require to be tied down or woven in, almost every day, in the hot season. It is then that the more delicate sorts grow well. As a rule, also, they should be grown in slight shade. It will readily be understood why creepers like shade, at all events for their roots. In their natural state they have most probably sprung up in some forest, or in the outskirts of it, and until they have reached the tops of the trees, have been more or less in shade. Creepers and climbers will not, however, flower well in abso-

lute shade. Some creepers like walls best, they will manage to throw roots into every crevice and climb up in an extraordinary way. Others again wind round and round stems and pieces of wood, and cannot adhere to even rough brick-work. If the weather is stormy, it may be necessary, at first, to tie up the tender shoots of creepers to the frame or sticks or whatever they are wanted to grow on. Do not do this too tightly, or the creeper will not grow well. No plants grow so well, when they are turned and twisted about, as when allowed to grow freely, but in a garden we cannot allow every thing to grow as it will. The great point will be to train the shoots of creeping plants when they are very young. By this plan they may be made even to grow downward for a day or two. The frames, on which creepers are trained, are generally made of bamboo. This is a most handy material for the purpose. If the ends that are to be in the

earth are first tarred, the white ants will not eat them. Sometimes a large-leaved creeper becomes too heavy for its frame. Do not cut it by any means, but put some strong pieces of bamboo into the pot to support the frame. This, if done with judgment, will not detract from the appearance of the frame, and the plants will be allowed to grow as it will. Creeping plants generally require a great deal of water. The sap, in the extremities of the plant, is apt to dry up if the roots are not properly moist. Although this little work is treating of flowers it will not be out of place to end with some general remarks, which, it is hoped, will be of use, and with a few hints, how to grow cucumbers, tomatoes, and birds-eye chilies, even in the vicinity of a flower garden, without there being an eye-sore and with great advantage to the *Cuisine*.





VIII.

MISCELLANEOUS

IN a former chapter, mention was made of how to move small seedlings into pots and how much time might be saved by doing so, when the proper season came to replenish and make up the garden. With reference to this, it will be often found, that all over the flower-garden, flower seedlings will come up from self-sown seed, and if these are treated in the manner before recommended for seedlings lifted into pots, a constant supply of young plants will be at hand. For however carefully the withered flowers are picked off, so prolific is a tropical garden, where the soil is good and abundantly watered, that some

few seeds of flowers are sure to ripen and as sure to get washed into the soil and germinate. It will do a flower-garden a great deal of good if the surface of the soil is stirred every second day after watering—that is, if the garden is watered on Monday, stir the soil a little, all over, on the Wednesday morning, before watering it, say, on Wednesday evening. A native gardener will move the soil of a large garden with an English garden trowel, in a few hours, holding the trowel, as a man is supposed to hold a dagger when stabbing. He will soon learn not to dig too near the roots of flower plants, and to spare any little seedlings, wished to be saved, for a day or two. If these are wanted, they will be fit to move in a week.

There are always some spots, near every flower-garden, which are either out of the way, or too hot, or too drafty, for flowers, and in these places some vegetables may be grown to the great advantage of the housekeeping,

and thereby untidy corners be covered over with handsomely growing plants. Those recommended are, cucumbers, tomatoes, and bird's-eye chilies. The first of these may be so grown in Madras so as to supply a cucumber every day for the table. The native sorts of cucumber, if properly dressed, are exceedingly good, and will give a relish to the daily fish, which nothing else will supply. Young cucumber plants can be obtained easily enough, in the bazaar, in March. At other seasons, the gardener must grow them himself. That is, must raise the seedlings. Those obtained in March will not last longer than July. When the plants are obtained, make a good large hole, about two feet square, in the ground, and fill it with the best compost you can obtain. In this, plant two young cucumber plants. They will grow well enough if allowed to run on the ground, and the natives will tell you, that is the best plan to cultivate

them, but it is not so. If you have planted them near a wall, the best plan is to make a lean-to openwork frame of split bamboos. Put this over them. The frame should be about as large as a door. Place one side of this frame on the ground, and lean the other side against the wall, the frame being at an angle of 45°. Train the cucumbers on this, so that the fruit shall hang down. By this means, the fruit will grow in the shade, it will grow long, instead of stumpy, and will not be splashed with mud, for your gardener may hold his hand with the watering-pot at the flowers, but when he comes to the cucumbers and you are away, he will dash the water out of the chatty all over them, as his forefathers have watered gourds from time immemorial. If the cucumbers are not grown near a wall, then grow them on to a frame about eighteen inches from the ground. The native cucumber, of which we are writing,

must be picked very quickly. Sometimes, in three days, from the formation of the flower. The fruit will be then about a foot long and an inch and half in diameter and ready for use, that is, the use Europeans put them to, when eating them sliced up with salt, pepper, vinegar, &c. To a native eye, they are not of much value, until full of seeds. Remember not to allow any cucumber plant, you wish to continue bearing, to ripen a fruit. If it does, it will stop producing other young fruit.

Tomatoes are very easily grown in Madras, but seldom very well grown. They will be found coming up round every ash heap in the wet season, and will fruit, but the fruit is small and thick-skinned. Even those sent to the Madras market from Bangalore and elsewhere are small and poor. If you want to grow large, succulent, bright, red tomatoes, about as large as an orange, as is done in England and all over the European Continent, you must grow

or procure seed of good plants. This should be planted in pots, and the plants put out as desired. Cuttings of tomatoes grow very well, and if it is found that any particular plant bears very fine tomatoes, finer ones may be obtained by planting cuttings from that plant. Tomatoes want plenty of sun from July to March. For sauce they will grow anyhow and anywhere, but if large ones are wanted for a tomatoe salad, they will want a little more care.

Bird's-eye chilies are grown everywhere, and are used to make the chili vinegar of commerce. But it is very difficult to procure them ripe so as to make red or cayenne pepper. The common red pepper, sold everywhere, is made from common chilies, and is not real red pepper, as water is to spirits of wine. Real cayenne pepper, made from bird's eye chilies is as bright as vermillion in color, and the least pinch with salt, is an excellent con-

diment to eat with fish. Pepper, made from these chilies, has a peculiar fragrance and aroma about it. Unripe bird's eye chilies can be purchased in the season (January and February,) in any number, and from these a green pepper can be made which is very pungent and pleasant, but really ripe good chilies of this sort are easiest procured by growing them. The plants are handsome plants and the red fruit show very well under some hot wall, where flowers would wither and be lost





GARDENING CALENDAR

FROM
JAFFREY'S HINTS TO
AMATEUR GARDENERS
IN SOUTHERN INDIA

KITCHEN GARDEN

January — As the weather during the month will generally be clear and dry, attention to watering is required; if possible, water in the morning, otherwise late in the evening, never water vegetables during the heat of the day. The sowing of European vegetables may now be discontinued, as in the majority of cases seed sown during this month will prove to be labor needlessly expended, they will not come to maturity, or scarcely to a state fit for consumption. Last month may be considered as drawing to a close all successful operations in regard to European vegetable sowing, with the exception of a few salads, which may be sown in beds, shaded and hand-watered with attention, they will produce small crops. During the first and second week is a good time to sow

cucumbers, vegetable marrow, gourds, and such like. Nepaul spinach should be sown and planted for a supply during the hot months. Attend to keeping the soil hoed amongst growing crops, eradicating weeds to prevent their seeding, which they now do freely, continue to earth up celery, choosing a dry day for directions as to *earthing*. Plant cuttings of the cabbage tribe in beds, if rooted they will give a good supply of sprouts during the hot months. Sow country vegetables if required, remove all decaying vegetables to the compost heap. Look to the graft mangoes, continue every two or three days to deepen the incision till the branch is cut through. If any are entirely removed they may be planted without delay, taking care to support them against damage from high winds.

FLOWER GARDEN.

The flowers during this month should be in great perfection. The main operations consist in keeping everything clean and in perfect order, using the knife amongst the shrubs, &c., where required. Attend to the young shoots of creepers so that they may be properly trained, cut back all plants that may be growing over the hedges of the beds or walks; this should be done neatly so that the use of the knife may not be discovered; nothing looks worse than plants abruptly cut round the edge of flower beds. Such cuttings of shrubs and roses, as are

rooted should be planted out in beds, well watered and shaded for a few days. Attend to plants in pots, roses in flower-bud will be improved by frequent watering with liquid manure, it will increase the size of the flowers. Shade tender plants from the mid-day sun, keep a supply of water exposed to the sun during the day, for watering potted plants in the evening. Attend to clipping hedges, keeping the walks and grass in proper trim.

Remarks.—The weather during this month is generally clear, rain seldom falls, dews are plentiful, vegetables are abundant towards the end of the month. Fruits, such as oranges, pomegranates, guavas, plantains, &c., are to be had.

KITCHEN GARDEN.

February.—As the Horticultural exhibition is generally held during the early part of the month, attend to the schedule of prizes if you intend to compete, preserve such articles as may be required by making them with stakes; in forwarding articles for competition, pay marked attention to what is required; avoid sending vegetables of any kind in flower pots. In the garden, little is required beyond the directions of last month; a few salads may be sown, country radishes, cucumbers and gourds may still be sown. Keep the garden clear from decayed leaves; vegetables during this month, especially the cabbage tribe, give out a most disagreeable odour if

left decaying. See that arrangements are made to keep up a supply of such country vegetables as may be required. Watering will invariably be requisite throughout the month, plant out (if on hand) cuttings of the cabbage tribe. Attend to collecting manure for the next season

FLOWER GARDEN.

The directions of last month are suitable to this, little more can be done than attending to watering and cleanliness; let plants in pots intended for exhibition, be protected from the midday sun if possible. During the course of the month, remove and put in pots a good supply of verbenas and such like, to preserve them during the hot season. Attend to plants in pots, frequently stirring up the soil on the surface. If worms are troublesome, a little clear lime water used occasionally will remove them.

Remarks.—The weather during this month is clear and calm, dew every morning, rain seldom occurs if ever; vegetables and flowers in most seasons are plentiful; fruits, such as sapodillas, mangoes, oranges, custard apples, &c., are to be had.

KITCHEN GARDEN.

March.—As the cultivation of European vegetables will no longer give any degree of satisfaction equivalent to the expense incurred, it is not necessary to presume that by giving directions, success will be

the reward of carrying them out. The heat is too great to develope seeds of northern climes, indeed it is mere chance to succeed in germinating and growing tropical seeds. Attention to the culture of such varieties of country vegetables as may be required is all that is requisite in cultivation, though the latter may be purchased in the market much cheaper than they can be grown in private gardens. All vacant spaces in the garden should now be dug, and thrown up in ridges (this is applicable to heavy soils) so as to expose the soil to the influence of the sun during the hot weather. Where the soil is light, let it be dug over level, collect manure without delay; if composed of heating materials, it will require to be watered and turned over frequently; be sure this matter is not overlooked; attend to watering lately planted mango trees, untying the ligatures round the grafted parts, support the stems securely against high winds, store yams in sand or dry soil.

FLOWER GARDEN.

Little can be done during this month; pay attention to cleanliness, watering shrubs, roses, &c.; such beds as are empty should be neatly dug over; look to the roots of dahlias, let them be stored in pots of sand, or the pots they were grown in; if the soil is dried they *must be kept dry*; gloxinias, achimenes and bulbs, require the same treatment; plants growing

in pots should be placed, if possible, to receive the morning sun and shaded during midday.

Remarks.—The weather during this month is clear, hot, and very unpleasant from the prevailing southerly winds, slight dew frequently. No rain falls during the whole course of the month; European vegetables are very scarce, dear, and bad in general: country vegetables plentiful, such as brinjals, radishes, greens, &c. Fruits none, with the exception of indifferent plantains.

KITCHEN GARDEN

April.—This month might be passed over in silence, as little or nothing can be done unless digging up any portions of the garden not attended to last month; this should not be neglected any longer. Cucumbers, gourds and melons may be sown during the month; they require protection from the sun until established. Attend to the fruiting pines; if the crowns appear to grow too large, let the hearts be taken out neatly; remove all suckers from the bottom of the fruit; after the fruit has swelled a good size, water should be sparingly applied as it tends to injure the flavour.

FLOWER GARDEN.

The directions of last month are suitable to this; little more can be done than keeping the garden clean and free of weeds; towards the end of the month

look well to the support of young trees, creepers, &c., as gales may be expected early in May. Prepare soil for plants in pots without delay; look over dahlia roots, &c., in case they are being injured by vermin. Roses in pots should not be excited at present, or they will be weakened.

Remarks.—The weather during this month is similar to that of last, wind changeable from S. to E. and W., dew is seldom seen. A few slight showers of rain sometimes occur; European vegetables are very scarce, native vegetables are plentiful. Fruits, such as grapes, pine-apples, and some of the orange tribe are to be had. Plantains are plentiful.

KITCHEN GARDEN.

May.—During the month the land wind commences, much difficulty will be experienced in cultivating any but the common varieties of country vegetables; dig over any vacant spaces of ground, no matter how roughly; prepare manure; repair and build water channels when required; make and repair roads and walks.

FLOWER GARDEN.

Now is a good time to put walks in good order, and make others where required. If composts for seeds and plants in pots are not preparing, delay no longer, as they will be required in July. Wash all empty flower-pots and order supplies for new ones;

use every endeavour to put down the unsightly pots in general use—it can be done.

Remarks.—The weather during this month is unpleasantly hot from the prevailing land winds, in most seasons a few slight showers of rainfall; seldom other than country vegetables are to be had, with the exception of cabbage sprouts, which are hard and tough; mangoes and pine-apples are plentiful and cheap, flowers are scarce

KITCHEN GARDEN.

June.—Although rain frequently occurs during the month, it is scarcely desirable to recommend the sowing of European vegetables. It is more requisite to push forward any new work that may be required, dig over and trench all vacant and new ground that may be taken in for cultivation. Be careful that a good supply of manure is on hand.

FLOWER GARDEN.

Preparing pits for planting trees and ornamental shrubs may be proceeded with, likewise the filling up of all hollows on the lawns where water accumulates during monsoons. Making new flower gardens where required, they should be proceeded with at once; it will save time when the gardeners are required for more active operations in July and August. Repair walks and make new ones: see that they are broad and level enough for two persons

to walk abreast upon them; there is no necessity to raise them up like ridges in the centre; if they are slightly convex to throw off the water, it is sufficient.

Remarks.—The weather during this month is similar to that of last; showers are more frequent: European vegetables are rarely to be had. Fruit is plentiful.

KITCHEN GARDEN.

July.—Everything should be prepared during the present month for sowing seeds in August if the weather is at all favorable, sow a small quantity of celery and parsley for early plants. Peas may be sown towards the latter part of the month, though with but slight chance of success in the generality of seasons; during the last week the levelling of the soil thrown up in ridges may be proceeded with. The manure heap should be in a fit condition for use.

FLOWER GARDEN.

Little can be done during the month further than preparation for the ensuing seed time; let composts be in a perfect state for use before the end of the month. Make up grass edgings with turf. Do not prune roses unless they show signs of growth; this can be easily discovered by the swelling and bursting of the buds: if they show signs, prune and manure, though waiting till the following month, would be more judicious. Take care not to be carried,

into too active operations by a good shower of rain. Look to the roots of dahlias, gloxinias and achimenes; they may have commenced to grow, retard them as much as possible, but bring them to the light: as dahlias are very impatient, their roots should be divided towards the end of the month into as many divisions as possible with a sharp knife, having shoot upon each division.

Remarks.—The rains of the S. W. monsoon commence during this month in slight showers; the sky is very cloudy; rain is frequent in most seasons. Fruit and vegetables are scarce.

KITCHEN GARDEN.

August.—As imported seed should now be on hand, let a first sowing be put in pots or boxes without delay. If the weather is favorable, successive sowings may be put in during the whole course of the month. Care must be taken that the soil is in a proper moist condition. Guard against the ravages of red ants: be sparing of water to imported seeds until they germinate. A first sowing of peas and French beans may be put in, likewise carrots, beet, parsley and radishes; choose a dry day, sow celery in boxes or pots in rich soil mixed with well-decayed manure, and a small quantity of powdered lime. The reason celery is so apt to run to seed, arises from inattention to keep up a constant luxuriance by the aid of good manure, celery should never receive a check; of

country vegetables, sow brinjals, gourds, cucumbers, roselles, greens, spinach, beans, chillies, snake gourds, &c.; plant yams and Jerusalem artichokes. Attend to top-dressing asparagus beds, make a fresh bed of water-cresses in a shady spot near a well or tank where they can be easily supplied with water twice a day. Put in suckers of pine-apples, prepare stock of mangoes for grafting. Let the garden soil be levelled, well manured and dug over; make sure the manure is well-looked after and mixed with lime and ashes before using.

FLOWER GARDEN

Sow seeds of everything that can be had most suitable for the climate; be careful how small seeds are sown and watered; look to the roots of dahlias, gloxinias, &c.; they should be set agrowing in good soil. If no plan has been definitely fixed upon to secure a good supply of flowers, now is the time to look to it; there is no time to spare: propagate verbenas by layers; sow hollyhocks, phloxes, petunias, balsams, &c.; increase your stock of chrysanthemums, by division, or fresh supplies; let the flower garden be well dug and manured; dig and manure round the roots of shrubs on lawns, &c. Let a shaded piece of ground be prepared in which to put cuttings of roses, shrubs, &c.; prepare pits for planting trees and shrubs, make them large and deep. Pits in the soil of Madras or anywhere should

not be less than $2\frac{1}{2}$ feet in diameter and depth. Too much care cannot be taken of seedlings, less they get drawn during the dull days that prevail, expose them to the light and air as much as possible. Top-dress all plants in pots not intended to be repotted with fresh soil and manure; repot and top-dress roses in pots. Prune and manure garden roses and put in cuttings.

Remarks.—It were unnecessary to write these instructions if those for whom they are written do not carry them out during the course of this month. As success can only be looked for by close attention, next month will be of less avail to have plants sufficiently strong to produce an early crop or to stand the heavy rains, and whatever complaints may have to be made anent the failure of vegetables and the display of flowers in January and February, it can be ascribed to no other cause than neglecting to conduct operations at the right season and in a proper manner. The native gardeners are not so much to blame as they in general go by the instructions they receive.

Rain is frequent during this month; country vegetables are plentiful, fruit and European vegetables are very scarce.

KITCHEN GARDEN.

September.—This is the proper time to sow a succession of peas. French beans and spinach they

may be put in every week during the month; continue to sow vegetables of all kinds Onions and leeks in light rich soil in beds, protected from the rain by mats, tied over moveable bamboo frame-work Attend to the seedlings sown last month; some of which will be ready for transplanting. Knol-khol and cabbage, if any were sown early in July, will be ready for final transplanting in the garden, in beds of rows; let them be lifted carefully; disturb the roots as little as possible Encourage the growth of celery by slight waterings of liquid manure; look after insects; a slight sprinkling of lime over and under the leaves will arrest their ravages; if not used let them be picked off with hand every morning, Lime will in no wise injure the tenderest vegetation, if slaked and cool. Native vegetables sown at the beginning of last month will be fit for planting out Commence to graft mangoes; make preparations, such as digging trenches, &c., to prevent the garden being flooded during the monsoon near at hand. Manure pine-apples, remove the suckers and put them into root.

FLOWER GARDEN.

Petunias, hollyhocks, phloxes, &c., &c., sown last month, should during this be fit for planting out, choosing a dull damp day Continue to sow balsams, hollyhocks and all showy annuals, not neglecting mignonette. Balsam seed from Hyderabad is gene-

rally good ; and from the cultivators there removing the lateral branches, they have acquired a peculiar upright habit, show about one foot of blossom in a column when well-grown. Attend to cleanliness and keeping the soil in flower-bed opened by hoeing (*the idea of seeing a Gardner sitting in a flower-bed digging it up with a piece of bamboo is absurd.*) Prune roses if hitherto neglected, layer bud and put in cutting of roses and such shrubs, trees and creepers as may be required. Sow seeds of trees and shrubs ; put in pipings of carnations, picotees in boxes, filled with fine sand, mixed with red earth. Let all creepers be neatly tied to the posts or trellises upon which they are trained ; prune where required ; prune and keep in proper form shrubs, &c. ; attend to cutting hedges and filling up gaps ; casuarina hedges neatly trimmed would be much neater round flower gardens than unsightly bamboo trellises ; it is astonishing they are not more generally planted. as they combine neatness with economy, are easily raised if the seed is not too deeply covered with soil.

KITCHEN GARDEN.

October.—Transplant all vegetable plants, large enough into beds or drills where they are to grow. Trenches should be ready to receive celery plants ; shade if the weather is clear ; look after tomatoes, onions, leeks, carrots and beet root ; let them be thinned out to proper distances from each other ; the

thinnings may be planted if required. Continue to sow a few varieties of vegetable seeds. Peas may be sown every week; let the drills in which they are sown be raised above the surface level; continue to sow a succession of French beans. Keep out a supply of salads, such as lettuce, endive, mustard, water-cress, &c. Finish early in the month preparations for planting out vegetables; do not trust till wanted, as the soil may not be workable from rain. Let everything about the garden be neat and clean; eradicate weeds on their first appearance. If the weather during the month should prove dry, peas and the cabbage tribe will suffer much. A supply of water will be requisite to prevent the crops sustaining a check which would prove very detrimental. When water is applied let it be in the morning, very early, if possible; when it is cool, frequent hoeing up the soil amongst the crops will require to be looked to. If activity is not displayed during the early part of this month in forwarding operations, there is but little chance of success for the season. Take particular care the crops are not planted on the same piece of ground they were last year; alternate them yearly if possible. Graft mangoes and plant pine-apples.

FLOWER GARDEN.

The operations of last month are applicable to this. Look after dahlias in pots, stake them and water

occasionally with liquid manure. Plant out verbenas, heliotropes and all other bedding plants. Keep up a supply of balsams, cockscombs, mignonette, &c. Plant trees and shrubs, attend to training and pruning creepers. This is a good time to get roses, fuschias, violets, &c., from the hills of Bangalore. Take advantage of dry days to cut grass; straiten and trim the edges of walks and beds. Give everything a neat and clean appearance. Protect all newly planted trees from wind. The best plan is to use three-tarred ropes for each plant, fix them to the stems round which should be tied a piece of canvas to prevent the friction of the ropes from injuring the bark; tie the ropes tight to three pegs, firmly driven into the ground at the proper distance from the plants. This is costlier than stakes but more permanent, and will protect the plants. This will protect the plants till properly rooted.

Remarks.—The weather during this month is generally wet and stormy, more especially during the latter part of it. Vegetables and fruits still continue scarce.

KITCHEN GARDEN.

November.—Few European vegetables will come to perfection if not fit to plant out during this month. Attend to transplanting seedlings; peas and French beans may be sown every week or ten days; the main

crop must be looked for from seed sown this month, as peas sown in December seldom succeed. Sow a small quantity of cabbage, knol-khol, cauliflowers, tomatoes, &c, likewise a few salads. Cauliflowers sown during the first week of the month; if they are well attended to, flowers may be had during February. Attend to transplanting onions and leeks. Thin out turnips and carrots to proper distances from each other. Plant celery in trenches; look after all details such as cleanliness, digging trenches to carry off the heavy rains; put in cuttings of cabbage sprouts for use during the hot season. Graft mangoes; put in cuttings of figs and vines. Plant onion bulbs for salad.

FLOWER GARDEN.

Continue to transplant seedlings into pots or boxes. Plant out annuals, verbenas, hollyhocks, phloxes and ipomeas, if strong enough. Sow any flower seeds remaining on hand. Sow seeds of trees and shrubs. Prepare early in the month stations for ornamental creepers, and plant without delay. Attend to training creepers and pruning where required. Prune and manure garden roses and put in cuttings. In pruning, cut the old branches down to three or four eyes from the bottom. Top-dress all plants in pots not requiring re-potting; protect tender plants from heavy rains; activity is required during this month to obtain a good supply of flowers during the three following months. The finer varieties of roses in pots

should be re-potted if necessary ; they require a heavy soil mixed with well decayed cow-dung. Support all plants requiring it from the high winds.

Remarks.—The weather during this month is in general boisterous, with heavy rains ; the N. E. monsoon continues with great violence. Vegetables and flowers continue scarce.

KITCHEN GARDEN.

December.—Continue to plant out and transplant into boxes all vegetable plants on hand during the first week. Attend to thinning turnips and carrots. Plant celery in trenches and earth up such as may require it. Keep the soil amongst the growing crops hoed, and eradicate weeds on their first appearance. Branch lettuce and endive by tying up the leaves. Thin out the branches of tomatoes. Look sharp after insects amongst cabbage and cauliflower. Use slaked lime freely on all crops attacked ; it will prove a beneficial check. During the month sow cucumbers, vegetable marrow, country vegetables for greens, &c Early planted vegetables will be fit for use towards the end of the month. French beans and salads should be in abundance. Attend to staking peas beans, &c Continue to make up a manure heap for the ensuing season ; let nothing be lost in the shape of vegetable matter. The main work of the month is attention to growing crops ; look to

early grafted mangoes; make incisions gradually on the branches above the grafts.

FLOWER GARDEN.

Plant out the remaining stock of annuals; sow a few hollyhocks, amaranthus, &c. A last sowing of balsams may be put in. Sow convolvuluses of all kinds. Petunias for flowering during the hot months. Attend to dahlias and encourage them by frequent watering of liquid manure. Keep the flower-beds and walks clean and neat; water and roll the walks towards the latter part of the month, it will give them a neat appearance, at the same time they will be more comfortable to walk upon.

Remarks.—The weather during the first two weeks is similar to last month, generally clearing up towards the latter end. Fogs are frequent; flowers still continue scarce with the exception of roses; vegetables are scarce; country greens, &c., are to be had in abundance; fruits, such as oranges, guavas and plantains, are plentiful.





ORNAMENTAL FOLIAGE PLANTS.

CONTRIBUTED BY MR J. M. GLEESON,
SUPERINTENDENT OF THE AGRICULTURAL GARDENS

CROTONS.

THIS interesting genus of plants which are chiefly natives of New Guinea, the Moluccas, and South Sea Islands, has deservedly gained a place in popular favour of late years. When this useful little hand-book of gardening made its appearance in 1859, these plants were almost unknown, the old *Croton Pictum* and *Variegatum* being the only two kinds in general cultivation. Owing to their liability to variation both under artificial fertilization, and by the agency of insects in their native country, an enormous number of strange formed and brilliant coloured foliaged plants

have resulted. Artificial crossing still presents a wide field for the introduction of new varieties, which may probably transcend in beauty all those now or heretofore in cultivation.

To increase our stock of any desirable kind which we may have from seedlings or from older varieties, propagation from cuttings is the most certain to produce nice plants in a short time. The cuttings should be 3 to 5 inches long, from the young growth, taking care that the base is tolerably firm, but not woody as these latter take longer to form roots. The lower two or three leaves may be cut away, but the upper leaves should be left intact. They may be put down to strike in any ordinary garden soil but pure white sand, not sea sand, is the most convenient medium in which to insert the cuttings, taking care to slightly water the sand before insertion and a good watering after to settle the cuttings firm. Large seed pans with some broken pots or bricks for drainage with a layer of old cocoanut

fibre over the latter to prevent the layer of sand in which they are to be inserted from washing away through the drainage are to be used. The plants should be shaded by means of palm leaves or mats or any other suitable materials at hand. The shading should only be used in bright sunshine, the covering being taken off at night and whenever the sky is cloudy. Making beds under trees, for cuttings should be avoided if possible. With ordinary care cuttings may be made at any season, but the commencement of the rains is the most suitable time as little or no care is then required for watering. They generally take root in 15 or 20 days in favourable weather.

When transplanting, the plants should be taken up singly, care being taken to leave untouched whatever sand adheres to the roots. Drainage should be liberal, and the pots should be no larger than suffices to conveniently contain the individual plant. Good virgin loam with leaf mould and about $\frac{1}{4}$ th silver sand

should be used. If good leaf mould is not procurable, good loam and sand will suffice. The mistake of putting a small plant in a large pot should be avoided. The use of large pots certainly saves future pottings, but in this case the plants never maintain so healthy a root action as when successively potted into larger pots as required. The central shoot should be stopped at about 12 inches. This causes the plant to throw out branches from the lower part so that when full grown it is well foliated down to the pot. Though in growing a few of the narrow leaved varieties, for table decoration, the principal shoot may remain intact until the plants get too large for that purpose. They may then be cut back to about a foot and allowed to grow on for large specimens. Their quick growth, comparatively easy propagation with their gorgeous colouration and adaptability to either pot-culture or permanent planting out in the garden, to contrast with dark masses of foliage, places them in the first

rank of decorative plants. Though certainly making a more vigorous growth under the influence of shade, they lose much in the splendid variations of colour which are never so vivid as when fully exposed to the sun. In places further more inland than Madras, &c., is pot-cultivation is perhaps to be recommended as the plants could thus be arranged outside in the cold season and a slight amount of shade might be found beneficial in the hot season. In the latter case they could be removed to a Plant-House of light materials, the semi-shade being obtained by having the roof formed only of light bamboo screens.

The number of varieties of Crotons, advertised in the most recent catalogues, amounts to over 200; but the following list of the principal kinds of Crotons arranged to shew their principal characteristics, may be found useful to amateurs. Those with only pale yellow and green colouration are marked with an *; those suitable for table decoration with a †.

A. *Large leaves, broader at the upper portion.*

Gladstonii,*—blotched green and cream colour, very large, bold striking foliage.

Williamsii,—dark green, crimson veining, very rich in colour.

Hendersonii,*—rich green, lemon coloured veins and margin, very bright.

New Guinea,—as *Hendersonii*, tinted with crimson.

Baptistii.—bright green, orange crimson marks.

B. *With large broad leaves of about equal width.*

Maximum,*—green with bold yellow veins: requires semi-shade.

Macfeanus,*—blotched piebald looking leaves, green and cream, very effective.

Grande,—bright green, veins pink: requires semi-shade.

Aureum,*—bright green, flushed here and there with yellow.

Rotundifolium,*—similar to last, but smaller leaf.

C. Medium sized leaves.

Pictum.—generally rich, olive green, sometimes beautifully blotched with pink.

Metallicum,—very dark olive colour, very rich and sombre : useful contrast plant.

Oblongifolium,*—bright green and gamboge yellow marbled.

Variegatum,*—rich green, veins all bright yellow.

D. Medium size with undulated margins.

Undulatum, †—black green with rich crimson, marbling, margins undulated : a superb and rich variety.

E. With medium oval-shaped leaves.

Rosea-Picta,—green, orange crimson veining, rich.

Royal Prince,—green, and lemon veins tinged with pink.

Andrieanus,—green, with orange pink veining.

MacArthurii, No. 37,—somewhat similar, but more effective than *Rosea-Picta*.

F. *Leaves long and of moderate breadth.*

Veitchianus,—green, centre of the leaf yellow, with crimson midrib.

Hookeri,*—rich green, yellow veining: bold foliated plant.

Weismanii,* †—green and yellow: one of the best for specimen purposes.

Superbiens,—yellow and crimson, with green blotches.

Concinnus,—green, with orange crimson veins.

Splendidus,—like *Veitchianus*, but smaller.

Goldiana,*—lemon yellow, with irregular green blotches.

G. *Long lance-shaped leaves.*

Lancifolium,—green with crimson midrib.

Wilsonii,* †—rich green, yellow midrib and mottled all over with yellow: very effective.

Macfarlainii,—similar to *Wilsonii*, perhaps the best, tinged rose.

Queen Victoria,—similar to *Sunset* : markings carmine.

Lord Ripon,*—rich green, bright gamboge yellow, veins rich and bright.

Sunset,—dark green, blotched irregularly with orange crimson, some leaves totally crimson.

H. *Leaves long and irregular in breadth, not twisted.*

Youngi,†—bright green markings on a yellow ground, blotched with crimson.

Lowii,†—similar to last.

Truffantianus,†—green, broad crimson centre, curious variegation.

Nobilis,†—(also called *Jacksonii*) rich green, yellow centre, crimson midrib.

I. *Leaves long and slightly twisted.*

Tonghii,*—(also called *Irregulare*) green, with pale yellow centre.

Angustifolium giganteum,*—yellow with green blotches.

J. *Leaves large, very long and twisted.*

Schomburgkiana,—dark green and crimson, curiously twisted, one of the best.

Challenger,—green, spotted pink, margin and midrib crimson.

Rea,—green, slightly twisted, central line orange crimson.

Australian Longifolium,—dark green, twisted.

Washingtonii,—as the last, but narrower leaf.

K. *Leaves narrow, twisted and interrupted.*

Interruptum,—yellow, crimson and green.

Duke of Edinburgh,* †—cream colour, blotched green, one of the best.

Duckess of Edinburgh,—green, spotted pink.

Mutabilis,—some very dark, others almost orange crimson.

Majesticus,—broad crimson central space, with green margins.

Picturatus,—green and pink, mottled and blotched.

Torquatus,—dark green and scarlet lake, one of the best.

L. *Leaves thin and narrow, slightly twisted and undulated.*

Johannis,* †—green and pale yellow, most effective.

Longifolium,* †—yellow and green, one of the most graceful in cultivation.

Microphyllum,—a most desirable variety : one of the most effective.

M. *Leaves twisted more or less.*

Spirale,—twisted, some leaves dark green, others yellow and crimson.

Crispum,—twisted, green margined, yellow and crimson centre.

Camptophyllum,* †—twisted, pale yellow with green blotches.

Amabilis,* †—green and yellow, delicate narrow foliage : pretty.

N. *Leaves horned ; curious shaped.*

Cornutum,—green margin with yellow and crimson centre.

Imperialis,—dark green with pink midrib and

margins : both broad and narrow shaped leaves.

O. *Leaves long, breadth variable, form grotesque. Multicolour*,—strange formed leaf, broad top, tricolored, very brilliant.

Variabilis,—blotched irregularly with green, white, grey, yellow and crimson : a beautiful variety.

MacArthurii,* † No. 11,—ragged looking leaf, irregularly formed of yellow and green : one of the best.

P. *Extremely long leaf, not twisted.*

Mooreanus,*—a most effective variety, yellow with green blotches, sometimes with short lobes at base.

Q. *Trilobed varieties.*

Alberti,*—yellow centre, green at lower part of leaves.

Disraeli,* †—narrow, yellow with green markings : sometimes five lobed.

Lord Cairns,—green, yellow and crimson.

Evansiana,†—green with yellow feather-like mark in centre, tinted with crimson.

MacArthurii, No. 85,—green, with yellow midrib and lobes.

New Guinea,—green and yellow lobes, a peculiar narrow trilobe.

Dormanianus,—a voluted trilobe, dark green, yellow and crimson spotted.

R. *Voluted leaves.*

Volutum,†—curious form, very effective, green with yellow veins and crimson midrib.

S. *Various shaped leaves, all spotted.*

Acubæfolium,—one of the best old varieties, the spots yellow with crimson centres.

Maculata,*†—green, spotted cream colour.

„ *Katoni*,*†—green, with cream spots, a trilobe.

Cromatum,†—green, irregularly and thickly spotted with orange crimson.





CROTONS,

CONTRIBUTED BY AN AMATEUR.

NO one who has attended the Annual Flower-Shows of the Agri-Horticultural Society for the past few years can have omitted noticing the immense piles of Crotons and other foliage plants exhibited year after year, the grand effect produced by the huge piles of Crotons alone testifying (if any proof were wanted) the increased interest taken by Amateurs in the cultivation of ornamental foliage plants; therefore, in issuing this new edition, a few hints on their cultivation have been added.

Crotons deservedly occupy the leading position among ornamental foliage plants not only because the Indian Climate, especially that of Southern India, is peculiarly adapted for their successful propagation, growth, and deve-

lopment, but also because in this group of plants is to be found not only the grandest but also the most fantastic, and grotesque, foliage, which in the generality of cases is extravagantly variegated, and thus rendered unexceptionably beautiful.

There are, at the present time, in the trade, upwards of two hundred distinct varieties, from which the most fastidious taste may be easily satisfied, besides these are the endless variety of nameless seedlings raised by Amateurs, and Horticultural Societies, and to these additions are being continually made by new introductions from Australia, New Guinea, the South Sea Islands, and the New Hebrides besides Hybrids raised by Horticulturists. (Hybrids are plants raised by the mixture, or crossing of two different species, with the object of producing a new species; or a new plant with the qualities of two plants combined in one). With such attractions as these, there is no doubt that for many years to

come, Crotons will continue to be regarded as the most desirable foliage plants suitable for decorative, and exhibition purposes.

PROPAGATION.

All the known varieties of the Croton family can be very easily propagated, namely, by cuttings; for this purpose, sometime before the rains come down, matured branches must be selected from the most vigorous and healthy of the Croton trees of the collection at disposal (tender branches are next to useless, as they seldom take root, and when they do, a sickly miserable specimen is the result). The selection having been made, cut off the branches with a sharp knife, if any of the branches are too long, divide them in two, or three pieces, taking care that none of the pieces are less than three inches in length, the pieces thus cut should, without loss of time, be planted in seed pans into which compost No. 1, the ingredients of which are given at page 17, has been previously put, the pan or pans must

then be put in a place where they will have plenty of shade and light, and will not be shut out from rain and dew when they fall; the cuttings, if regularly watered from a can will, in a short time, take root. If the operations detailed above are carefully conducted in the cool of the evening, or on a rainy day, there will be very few casualties among the cuttings; the coarser natures very seldom fail, but should some of the rare kinds fail, fresh cuttings of those particular kinds must be taken, and put into a separate pan, and grown under a glass cover. Should the quantity of cuttings required to be put down at one time be so large that they cannot be dealt with in pans, then the cuttings of the common varieties may be put into a bed in the ground conveniently situated, as to shade, and open to rain and dew.

Within three weeks or a month, the cuttings will have rooted, and as soon as they have put forth three or four leaves, they are

ready for transplantation into nursery pots, say 7 inches deep, 7 inches wide at the top, and 6 inches at the bottom, filled with new soil similar to that in which they were propagated, in these pots they may safely remain for a season, when they must be transferred into larger pots, say 12 inches deep, 12 inches wide at the top, and 8 inches at the bottom, (inside measurement).

PROPAGATION BY SEEDLINGS.

Croton Seedlings.—For the benefit of those who care to raise seedlings, a few hints are included for their guidance. Most of the common varieties of the Croton flower and perfect their seed, the quantity of seed produced is very variable; the female flowers are borne on a spike 6 to 8 inches long resembling the tendril of a climbing plant; the flowers mature and are succeeded by globular fruit, these must be enclosed by a very light coarse muslin bag, so that, when they become ripe and burst, the seed contained in the berry

may not be lost as they are scattered to a great distance: by the use of the muslin bag not only are the fruit and seed secured but light and air are admitted into the bag, when all the fruit from the spike or tendril have dropped into the bag, remove it and place it in the sun for a few hours, then sow the seed immediately (as they invariably deteriorate very rapidly by keeping), if fortune is propitious, some very fine plants may reward the patience and perseverance bestowed in raising the seedlings. If the raising of seedlings is made one of the customary gardening operations, it will soon, by habit, become an amusement.

GROWTH AND DEVELOPMENT.

Crotons like all other plants absorb the nutriment they require by their roots; this is passed through the stem into the leaves where the greater portion of the liquid of which it is composed is discharged, and the residue is submitted to the action of the atmosphere;

Carbonic acid is thus generated, which is decomposed by the action of the light; Carbon is then fixed under the form of a nutritive material which is re-conveyed into the system of the plant, and thus its growth and development are secured in proportion to the supply of the nutriment. But it has been ascertained that a proportion of this secreted matter is subsequently discharged by the roots into the soil, thus rendering the soil unfit for the cultivation of the same species, although plants of other species may be raised in the contaminated soil without much apparent injury.

It is very remarkable in plants which ripen their seed and throw out suckers or shoots, that these suckers strike out to a considerable distance from the parent plant, as if endeavouring to avoid the soil contaminated by the excrementitious discharge from the roots of the parent tree.

It is, therefore, evident that periodically a change of soil is essential, and that plants

in pots must be transplanted annually, and where this change cannot be effected, the soil around the plant must be very carefully removed without injuring the roots, and new soil substituted, for that which has been already removed; this operation of transplanting or changing of the soil must invariably be performed shortly before the rains commence.

It must be borne in mind that the operation of transplantation will, more or less, effect the foliage or flowers put forth immediately after, or which were in course of being perfected when the transplantation took place, the result depending very much on the care bestowed in the carrying out of the operation, when carelessly done, not only is there the risk of the subsequent foliage or flowers being diminished in size, or distorted, but it may result in the loss of the whole of the foliage, or flowers or in the total loss of the plant itself, therefore plants intended for exhibition or show purposes should not be interfered with,

even if by accident the earthen pots containing them are fractured, they should be retained as they are, and the change into the new pot effected on the evening preceding, the morning of the show, so that the foliage or bloom of the plant may be in perfection for the occasion.

ALPHABETICAL LIST OF CROTONS,

WITH A SHORT DESCRIPTION OF A FEW OF THEM.

C. Alexandra is a tender but rare broad leafed variety; leaves being 12 to 16 inches in length by 5 inches in breadth, of a dark green color, irregularly spotted and streaked with orange yellow and carmine, as the leaves mature, these colors change into bronze and rich crimson; should be grown in the shade, and cuttings will only succeed under glass.

Croton Albicans.

C. Amabilis.—A hardy narrow leafed variety produces green leaves, 4 inches long by half an inch wide with midrib and margins marked

creamy white; wants shade only in the very hot months, cuttings root easily. This plant can be grown for a long time in a small pot or vase for table decoration.

C. Andreanus.—Richly colored large leafed variety, must be grown in the shade, the leaves are 12 to 14 inches long by 5 inches at the broadest part, the ground color is green, on which the midrib and veins are marked out in light creamy white, as the leaves mature, these markings become a rich crimson, cuttings succeed well. This plant must be “stopped,” that is, the top must be pinched off to make it branch.

Croton Aneitumensis. *Croton Argus.*

C. Appendiculatus.—Hardy variety with small green, unmarked, interrupted leaves, that is, two leaves are grown which are connected by a costa or thread-like rib, about 1½ or 2 inches long; wants protection during the very hot months only, cuttings root easily.

Croton Augusti- folia.	Croton Aureo—lineata.
„ do. gigantea.	„ „ —maculata.
„ Aucubæfolius.	„ „ —phinecia.
„ Attunata, (Vivi- cans.)	„ Baptisti.

Baron Frank Selliere.—This hybrid has leaves 12 inches long by 4 wide, of a pleasing green, with irregular markings of a creamy yellow; wants shade, cuttings, if not treated with care, will not root.

Baron James De Rothschild.—Also an hybrid of rare beauty, grows very slowly, but the leaves are richly marked with bright crimson at a very early stage; they are obovate in shape, 9 inches long by 4 wide; must be grown in the shade, and cuttings raised under glass. This plant must be “stopped” to branch, and its slow growth and brilliant colors make it very suitable for table decoration.

Barton Westii.—This is a plant introduced by Mr. West of Calcutta from the south sea

islands; has very long leaves from 24 to 36 inches in length, and about 2 inches in breadth, but as the leaves are rolled backwards, they appear much narrower than they really are. The ground color is a pleasing green with a narrow golden central band with occasional patches of the same color; must be grown in the shade, cuttings root easily.

Croton Bicolor Croton Bismarkii.

Croton Braegæanus.

C. Bergmanni.—This variety is of continental origin with bright green leaves, a foot in length and 6 inches in breadth, with the veins and central band marked out in ivory white; wants shade, cuttings must be treated with care.

C. Broomfieldii.—A narrow leaf variety, with very dark green leaves, 9 inches long by $2\frac{1}{2}$ wide, with the midrib and margins marked in bright crimson and golden variegations, in the shape of spots and bars freely distributed all over the leaf, must be grown in the shade; cuttings require care.

Croton Braithewaitei. Croton Burtoni.

„ Camptophyllus. „ Carrieri.

„ Cascarilla. „ Chrysophyllus.'

C. Challenger (Imperator).—This is an old favorite and deservedly so, having graceful drooping leaves from a foot to a foot and a half in length by 2 or 3 inches in breadth ; the young leaves are of a very light green with creamy white markings which leave very little of the green to be seen, as the leaves mature, much of the latter color gives place to magenta which gives the leaves a very grand appearance ; easily propagated, but must be grown in a very shady place.

C. Chelsoni comes to us from New Guinea ; has small narrow leaves, very variable, some twisted, others plain, but all of them richly colored with a peculiar tint of orange and bright crimson ; wants shade, is propagated easily and very suitable for table decoration.

Croton Comte de Germiny. Croton Concinnus.

„ Contortus.

„ Cornigerus.

C. Cooperii.—A very handsome long drooping leafed variety, very finely marked, the foot-stalk which is 6 inches long is magenta, and this color is carried through the length of the midrib of the leaf which is from 12 to 18 inches long and 3 inches wide; the ground color is dark green with all the veins marked out in creamy white; the well grown matured leaves have tints of crimson intermixed, and appear, when seen from a distance, as if they were covered with white lace with crimson threads run in here and there. This plant is very tender; wants shade, but will propagate easily, must be “stopped” to branch.

Croton Cornutum. *Croton Countess.*

„ *Cronstandti.* „ *Crown Prince.*

„ *Cunninghami.* „ *Darciana.*

C. Dayspring.—This is a very pretty variety with glowing colors like “Sunset”; has semi-transparent leaves 12 to 18 inches long and 3 inches wide, not only is the upper part of the leaf marked with orange-yellow and crimson,

but the under part has a shade of red which is reflected through the leaf, giving it a fiery appearance; wants shade, and cuttings must be raised under glass.

Croton Diadem.	Croton Diana.
„ Diversifolia.	„ Dodgsonii.
„ Dormanianus.	„ Droueti.
„ Duke of Con- naught.	„ Duke of Buc- cleuch.
„ Duke of Edin- burgh.	„ Dutchess of Edinburgh.

C. Eburneus has lanceolate leaves, 8 inches in length by an inch in breadth, the ground color is green with an ivory white band half the breadth of the leaf running along the centre; propagates easily but must be grown in the shade.

Croton Eclipse.

C. Elegantissimus *sp. W. Bull* has very long narrow leaves, the foot-stalks of which are of a bright red color, the variegation of the lea

consists in blotches and patches of bright golden yellow, and chrome yellow, is of hybrid origin, very tender, wanting shade, and difficult to propagate except under glass.

Croton Elegans. Croton Evansiana.

„ Ensifolia. „ Fenzii.

Croton Elegantissimum.

C. Excelsior has richly colored narrow leaves about 16 inches long by an inch and a half wide of a deep green color with yellow markings which become a very bright crimson, when the leaves mature, must be grown in the shade; and propagates easily.

C. Formosus has lance-shaped leaves 15 inches long and an inch broad; the stalks are crimson, which color extends itself all along the midrib, the bright green leaves are marked with pale yellow bands, blotches and spots which subsequently change into crimson; wants shade, and propagates easily.

Croton Fordii. Croton Foxii.

„ Freckle. „ Fucatus (lacteum.)

C. Gladstonei has large bold leaves 16 inches long and 4 inches broad at the top, but tapers towards the stalk, the large green leaves are covered with pale yellow markings, sometimes in bands, sometimes in patches, must be grown in a shady place, propagates easily, must be "stopped" early if a widespread plant is desired.

C. Gloriosus.—A new introduction from the New Hebrides also known as the "Princess of Wales;" the leaves are narrow being a little more than an inch in breadth but about 24 inches in length, some of the leaves are very much undulated, the habit is arching, and the variegation is uncertain, in some leaves the ground color is creamy yellow with clouded green blotches and spots, the smaller spots being confluent, in other leaves these conditions are reversed; this plant must be protected from the sun throughout the year, and cuttings will only root under glass.

Croton Goldie:

Croton Goldieana.

Croton Goodeneoughti. Croton Gracilis.

„ Grande. „ Grotesque.

„ Hastiferus. „ Harlequin.

„ Hawkerii. „ Hendersonii

Croton Henryanus. (Macarthuri,) No. 46.

• *C. Heroicus*.—This plant has leaves resembling the trilobed variety; the leaves are obovate and having the front portion of the leaf narrower than the back, the bright green leaves are copiously marked with yellow, in some cases the whole of the leaf is covered with this color, on others it is mixed with a rosy crimson tint; wants shade, and cuttings must be treated with care, is very suitable for table decoration.

Croton Hillianus. Croton Hybridum.

Croton Hookerii.

C. Illustris is a fantastically grotesque looking plant with a very good sprinkling of three-lobed green leaves attached to purplish foot-stalks, and spotted and blotched with golden yellow; must be grown in the shade; this is

a new plant not yet propagated in Southern India; cuttings should be raised under glass to prevent disappointment.

Croton Imperialis. Croton Imperialis—

aurea.

„ Interruptum. . „ Interruptum
—aurea.

„ Insignis. „ Irregular.

C. Jamesii, a very distinct variety with leaves from 3 to 4 inches in length by 2 inches in breadth; the ground color is ivory white with scanty irregular markings in green of two or three shades, a very delicate plant, wants plenty of shade, this plant must be “stopped” and compelled to branch early; cuttings succeed well, very suitable for table decoration.

C. Johannis.—This is a long narrow leafed variety (resembling the old “longifolium”) the leaves are from 10 to 14 inches in length and less than half an inch in breadth; the ground color is green which in the young

leaf is suffused with yellow markings, but when the leaf matures, scarcely any of the green ground color remains to be seen, the leaves being almost entirely yellow ; will stand a moderate amount of sun ; cuttings grow easily.

Croton Jubilee. Croton Jacksoni (Noblis).

C. Kingianus.—As its name denotes is the grandest and noblest of the Crotons, with rich bright green leaves, some of which are 20 inches in length and nearly 8 inches in breadth, brilliantly variegated with golden yellow markings ; the plant must be grown in the shade where plenty of light is available, or the golden markings will not come out to advantage ; cuttings easily root.

C. Lady Zetland is a densely leaved variety of drooping habit ; the leaves are a foot long but only an inch wide of a shining green splashed with yellow ; the midrib being dark orange margined with crimson ; wants shade, and cuttings must be raised under glass.

leaves have a shade of crimson which makes them very rich in appearance, must be grown in the shade ; cuttings want care.

Croton Linearis. Croton Lord Belhaven.

C. Macfeeanus is a plant with foliage like Croton "Maxima," with a large patch of creamy yellow, sometimes covering nearly two-thirds of the leaf and at others only one side of the leaf leaving the opposite side perfectly green, must have shade ; cuttings grow easily.

Croton Macfarlanei. Croton Macarthuri.

„ Macarthur Species. „ Macarthuri,
Nos. 11, 37,
47, 56, 85.

„ Maculata-Kattonii. „ Maculata—
var.

C. Magnolifolius, is one of the few large leafed Crotons that has the primary veins of the leaf distinctly marked in crimson on a bright green ground ; the leaves are 12 to 14 inches long and 5 inches broad, will grow to advantage next to "Kingianus," is very deli-

cate, and if placed where there is too much sun or shade, will deteriorate very rapidly; cuttings raised under glass.

C. Majesticum, a bright looking plant with narrow leaves about 14 inches in length, the ground color is light green with the central rib marked out in creamy yellow, but as the leaves mature, the green and yellow are replaced with a dark shade of red, and the middle of the leaf has a bright crimson band; the leaves being long and drooping, makes the plant very handsome; must be grown in the shade; cuttings succeed well.

O. Mirabilis is a richly marked plant with leaves 10 inches in length by 3 inches in breadth, the bronze green leaves are marbled, blotched and veined with rosy crimson which gives it a rich appearance, wants shade; cuttings require care.

C. Morti has leaves 8 inches in length by about 4 inches in breadth in the broadest part, that is near the apex; the leaf tapers towards

the footstalk, the ground color is a bright green on which the midrib and primary veins are very broadly marked in creamy yellow, wants plenty of shade; cuttings rather delicate.

Croton Maxima. Croton Microphyllum.

Croton Medium.

C. Mooreanus has long drooping leaves 16 to 18 inches in length by $1\frac{1}{2}$ inches in breadth, the ground color is a bright green with bright yellow markings consisting of a yellow midrib and primary veins with numerous yellow bars across the leaf; in some cases the yellow is very profuse, but this condition is only obtained by exposure to the sun, a moderate exposure, during the cooler months only, will produce a very handsome plant; cuttings grow very easily.

Croton Mrs. Dorman. Croton Multicolor.

C. Multiformis grows a variety of leaves, that is of different shapes, the most interesting of them being the spiral and interrupted ones which are about a foot long and an inch

in breadth; the ground color is bright green spotted with pale yellow and tinted with crimson; requires shade; cuttings must be treated with care.

Croton Murillo.

C. Mutabilis (*Princeps*).—As its name denotes grows leaves of a variety of shapes; the most remarkable are those that are interrupted and which are enlarged towards the apex into a cup-like termination, from which a rib or thread grows for 2 or 3 inches in length, and a second leaflet also very variably in shape is formed; the colors are dark-green, marked with shades of yellow and pink, which, when matured, become bright orange and magenta; must have shade; cuttings easily root, but in selecting branches, one with the largest number of interrupted leaves on it should be chosen.

Croton Neptune. Croton Nevillæ.

,, Newtonii. ,, Negro-rubra.

Croton Nigrum.

C. Ornatus has oblong deep green leaves,

with partially undulated margins, a central band, and long parallel veins of creamy yellow, also irregular blotches of the same color which becomes tinged with crimson, some of the leaves are bronzy green with lines and blotches of rosy pink and a midrib of rosy crimson; propagated easily.

Croton Orestes. Croton Ovalifolium.

C. Prince Albert Victor.—An Australian variety of dense drooping habit, some of the long pendulous leaves are completely spiral, others have a twist only, but they are invariably undulated; the leaf is dark-green, handsomely spotted and margined with yellow; requires plenty of shade, and cuttings are propagated easily, must be “stopped” to branch.

C. Prince of Wales.—This plant has been cultivated under the name of “Schomburgkiana;” it is too well known to require description; it is however very difficult to obtain a position for this plant in the garden so that the leaves may be well colored; a well

colored plant should have its leaves almost entirely pale yellow, margined and blotched with rich carmine, with irregular patches of light green, the midrib and leaf stalk being bright magenta; cuttings root easily.

Croton Parkerii. Croton Pictum.

„ Picturatus. „ Pilgrimii.

„ President. „ President

Cherreau.

„ Paradoxus. „ Prima Donna.

C. Recurvifolius.—This plant is a great improvement on Croton “Volutus,” the leaves growing more densely, being twice the breadth, and the midrib and veins being marked in rich crimson, makes it a grander plant, the leaves have also a rugged and waved appearance as the veins are much sunk below the surface; must be “stopped” to branch; propagated easily.

C. Roseo-Picta.—A very tender but pretty Hybrid of dwarf and dense habit and very richly colored; the green leaf being literally

covered with markings of a very light yellow and rose tints; must be grown in the shade, and cuttings raised under glass, the old variety *Croton "Pictum"* is often sold as *Roseo-picta*.

Croton Queen Victoria. *Croton* Regina.

„ Queensland. „ Reedii.

„ Rex. „ Rodec-
kiana.

„ Royal Prince. „ Rotundi-
folia.

C. Rubescens, an introduction from the South Sea Islands with lanceolate leaves, the midrib and veins are yellow with freckles of the same color passing through rosy red on the ribs and orange red on the freckling to deep green with rich crimson lines and spots; wants shade, and cuttings require care.

Croton Rubro-lineatus.

C. Schomburgkiana.—This is similar in description to the "*Princess of Wales*," only the coloring is pale yellow, white and brilliant crimson; must be grown in the shade and

“stopped” if required to branch; cuttings must be raised under glass.

C. Sir Ashly Eden, has very handsome twisted leaves of a graceful drooping habit, about 18 inches long and $1\frac{1}{2}$ inches in breadth, the color is green, the midrib and margins are deep magenta, the underside of the leaf is crimson, but many of the leaves are entirely marked with magenta which makes it a grand plant; wants plenty of shade, being delicate; cuttings should be put under glass.

Croton Sovereign.	Croton Sunset.
„ Spectabilis.	„ Speciosus.
„ Splendidus.	„ Speckle.
„ Spencki.	„ Spiralis.

Croton Stewarti.

C. Superbiens, a very richly colored variety, a native of New Guinea, the leaves are oblong acute, with the base rounded; they begin to color with yellowish markings on a green ground and finish off on the matured leaves

with a ground color of dark bronze intermixed with coppery portions, while the costa and veins are picked out with crimson, making a very handsome plant for table decoration ; wants shade, and cuttings root easily.

Croton Shuttleworthii. *Croton Tri-color.*

C. Trilobus, Earl of Derby, is a very slow growing three-lobed foliage Croton of dwarf habit, the stem and the leaf stalk are bright yellow, and this color extends along the midrib and diffuses itself over two-thirds of the leaf, which subsequently takes on bright red markings as the leaf matures : this plant must be “stopped” to branch ; must have plenty of shade, and from its dwarf habit, slow growth, and rich coloring is suitable for table decoration ; cuttings succeed easily.

C. Trilobus, Lord Cairns.—This is like the “Earl of Derby” only with leaves of much brighter colors ; the mature leaves being entirely covered with bright crimson, it is hardy and can be placed out in the open garden ex-

C. Vittatus, has oblong leaves 9 inches long by 2 inches wide, with long leaf stalks colored yellow and bright red, the fine green leaves have a band running laterally along the bases of the primary veins, which are of a creamy yellow color, as the leaves mature, the red in the leaf-stalk extends along the midrib of the leaf, giving it a brighter appearance; wants shade; cuttings succeed well.

C. Warrenii, has very long narrow spiral leaves, sometimes 30 to 32 inches in length, pendant and arching, the dark green leaves are fantastically mottled and marked with rich crimson, carmine, and orange yellow; this plant grows very slowly and will only branch when "stopped;" requires plenty of shade; cuttings succeed easily.

Croton Washingtonii. *Croton Weismannii.*

C. Williamsii.—This is a very richly colored variety, the foliage begins to characterise at a very early stage, the leaves are 10 to 12 inches in length by 3 or 4 inches wide, the

young leaves are green with bands of yellow, but these colors quickly disappear as the leaf matures, when the leaf is found to be of a reddish bronze marked with rich violet crimson and magenta, the underside of the leaf is also colored with a shade of crimson imparting altogether a rich appearance; this plant branches freely, and is very good for table decoration, although a fast grower will not stand much sun; cuttings root easily.

Croton Wilsoni. Croton Wrightii.

Croton Youngii.



FOLIAGE PLANTS.

ALOCASIAS

THERE are above fifteen varieties of this plant in the trade, all of them are easily grown in compost Number 3 given at page 18* for bulbs; many of these plants require to be grown under the shade of trees, or in the fern house, their leaves are of imposing dimensions, and a few of them have beautifully variegated stems and leaves: some varieties of this plant propagate themselves (like "Gigantea," "Lowii" and "Macrorrhiza-Variegata,") that is, young shoots grow round the parent plant, which spring from the roots, when these have established themselves well, and grown 3 or 4 leaves, they should be removed from the parent plants; (between October and February being

* Hints to Amateur Gardeners, by A. T. Jaffrey.

the most suitable time) other varieties like "Metallica" and "Zebrina" grow bulbs which will be found among the roots when making the annual transplantations, these bulbs should be collected and sown in shallow seed pans filled with fine river sand when they will germinate.

The kinds offered for sale are named as under:—

Alocasia Amabilis. *Alocasia Chelsoni.*

A. Gigantea—This is a grotesque looking plant growing to a great height, the leaves have numerous projections like digits, and the edges of the leaf are slightly undulated, the leaves like the plant are of huge dimensions.

Alocasia Illustris. *Alocasia Jenningsii.*

A. Johnstoni (*Cyrtosperma Johnstoni*).—This is a very beautifully variegated description, is a native of the Solomon Islands (in the Pacific Ocean) has arrow-shaped leaves, olive green, variegated and veined with bright rosy red, the leaf stalk is furnished with whorls, and the stem is darkly mottled.

Alocasia Lowii. *Alocasia Macrorrhiza-*
 Variegata.
 Alocasia Marshallii.

A. Metallica, so called from the metallic hue of the leaves which are peltately attached to the leaf stalk and slightly cupped, the primary veins are depressed and are marked distinctly in a deeper color than the ground color of the leaf; this plant is delicate and requires care, propagated by bulbs found among the roots.

Alocasia Pieta. *Alocasia Singaporensis.*
 „ *Sedenii.* „ *Sikhimensis.*

A. Thibautiana has immense leaves of a deep olive greyish green, with a midrib of a peculiar grey-white tint with grey veins branching from it, the leaves are of a lasting description being of a firm stout leather-like texture.

Alocasia Veitchii. *Alocasia Violacea.*

A. Zebrina, so called from the stem being variegated; known to native gardeners as the Snake Caladium.

ANTHURIUMS.

These plants belong to a very picturesque family and are remarkably adopted for decorative and show purposes ; the huge leaves are in some cases very beautifully marked, and some have a lustrous velvety appearance : new varieties are continually being introduced especially by Mr. W. Bull of Chelsea from New Grenada, Brazil, Colombia and South America ; the majority of these handsome plants which have been imported to this country grow easily ; they propagate very slowly by suckers or shoots, but they can also be propagated very rapidly by removing a portion of the bulb of the old plant, cutting or dividing it in pieces about 1 inch square, with one or more eyes in each piece and sowing them in shallow seed pans with fine river sand, this process requires skill and experience, and should be tried on the common varieties at first, and when sufficient experience has been gained in rearing these, rarer varieties may be propagated by this

method, no plant, less than two years old, should be operated on in this way and no more than two-thirds of the bulb of the parent plant should be cut away and in doing this, the roots of the old plant must be saved uninjured as far as possible : the portion cut away should be washed *clean* of all earth or manure then the whole of the roots adhering to it, must be removed, and the bulb divided and sown as already directed. The whole of these plants must be grown in the shade.

The varieties commonly met with in Indian collections are—

A. Andreanum, a magnificent plant from the United States of Colombia of tufted habit with cordate dark green leaves.

A. Crystallinum.—This is now very common and may be seen in almost every collection, it is nevertheless very handsome, having large leaves of a rich but dark olive-green with the principal veins marked out on either side by

bright silvery white bands. The young leaves are of a shade of bronze.

A. Crystallinum Williamsii.—This plant is very much like the above except that the leaves are considerably elongated.

A. Dechardi, a robust variety admired for its snowwhite flowers which are fragrant.

Anthurium Grande. *Anthurium Hybri-*

„ *Insigne* (*this* *dum.*

*is a new tri-
lobed variety.*)

„ *Magnificum.* „ *Ornatum.*

„ *Patini.* „ *Regale.*

A. Scherzerianum.—This plant is chiefly admired for its large brilliant scarlet flowers.

Anthurium Trilobum. *Anthurium Williamsii.*

A. Veitchii.—This plant has leaves nearly 3 feet long and a foot broad with a glossy metallic but waved appearance.

Warocqueanum.—This is a fine variety with leaves from 25 to 30 inches in length by 8 or 9 inches broad, of rich velvety green on which

the midrib and veins are marked in a lighter color forming a fine contrast.

ARALIAS

This family like the *Panax* is very much used for table decoration, will stand the sun only in the cool season and like *Crotons* are propagated by cuttings; the foliage is very varied being in some instances variegated with creamy-white, and in others reddish crimson; the leaves also assume many irregular shapes, some being very minute in size while others are the reverse, as these plants are easily grown, they are worthy the attention of amateurs.

DRACÆNAS.

These plants belong to a very elegant showy family, and are now so numerous that leaves of almost any shade of creamy-white, green or red, can be obtained, mixed or unmixed, with other tints, most of them propagate themselves by suckers; but by a division of the bulbs like those of *Anthuriums*, they can be very easily increased; in 6 or 7 months the bulb of a

dracæna can be divided if the weather is cool enough, the pieces cut from that portion of the bulb removed must be put into seed pans with fine river sand to grow.

Dracæna Goldieana is considered the Queen of this group, it comes from Western tropical Africa, the leaf stalks are of a grayish color, with a furrow along the upper side, the leaf blade is cordate-ovate with a yellowish green rib marbled and branded with alternate silver-gray and dark green bands, the reverse of the leaf having a reddish purple color.

MARANTAS.

This is a group of very ornamental foliage plants easily propagated by division of the bulbs, or by the suckers thrown out by the parent tree.

The Arrowroot plant belongs to this family, and is known as "*Maranta Arundinacea*."

PANAX.

These are ever green plants with remarkably varied leaflets, some of them are of a dense

bushy habit, the leaves being as numerous as they are minute, a few of them are plume-like in character, and these are unsurpassed for table decoration; can be propagated without any trouble from cuttings, during any time of the year.

PALMS AND CYCADS.

It is a matter for surprise that with a climate so suitable for their growth, and with so many natives at hand, these plants which are undoubtedly the noblest and most majestic of the vegetable kingdom have suffered so much neglect; their name is Legion and their luxuriance, grandeur, and adaptation for table and other decorative purposes unsurpassed, yet beyond a few common varieties, they are almost unrepresented in most collections, and the absence of the finer kinds in our Annual Shows and in our gardens is an error that must be put right without loss of time; no known plant is capable of imparting the oriental grandeur, that a pile of palms can, to a tropical

garden, the numerous dwarf kinds with miniature but nevertheless perfectly graceful forms are admirably suited for the decoration of the drawing and dining room while the larger kinds are suitable for entrances, verandahs and conservatories, the natives being grown out in the open garden.

The most economical method of obtaining a collection is to raise the same from seed which is obtainable at very reasonable rates from the Royal Botanical Gardens at Calcutta, Mauritius and Ceylon, the seed should be received in May or June if possible, and put into nursery pots or pans, each description separately, because young palms look very much alike and if mixed up, cannot be distinguished easily by Amateurs until after the leaves begin to characterise; the soil in which the palm seeds are to be sown, should contain very little manure, therefore take three baskets of earth from any part of the garden free from stones and gravel, mix one basket of red earth and

one of river sand to which add half a basket of horse manure, and you have a soil suitable for their growth; after the seed has been sown, water the pots or pans regularly from a can, the seed takes months to germinate, varying very much according to the species so that watering should not be discontinued because some of the seed has germinated, and the others show no signs of putting in an appearance.

Palms, as a rule, grow very slowly, so to expect to propagate them from the seed, to be obtained from plants raised from seed, is quite out of the question: but fortunately some kinds remarkably the cane or *Calamus* palms throw out shoots or young plants by the side of the parent tree; these may be separated during the rains from the parent, but care must be taken to first see, that the young plants have formed independant roots for themselves through which they can absorb the nutriment necessary for their existence.

The following is a list of palms nearly all of which can be obtained either by seed or in small seedling plants from Indian Nurseries at a comparatively cheap rate, but any one wishing to possess a first class collection, must make up his mind to pay from five to fifteen guineas a dozen for them in England, besides the cost and risk of bringing out to this country, rare specimens (which are quoted from two to five guineas each) to be handed over to the tender mercies of a native gardener who would be sure to kill them with mistaken kindness, if not with starvation. .





LIST OF PALMS AND CYCADS
THAT HAVE SUCCEEDED WELL
ON THE PLAINS.

ARECA *Aurea*, one of the finest and most graceful of the nut palms, with stems of a yellowish color, easily raised from seed.

Areca Baueri also known as "Seaforthia Robusta."

Areca Disticha known in some collections as "Wallichia Disticha," easily raised, and will grow in any situation.

Areca Gracilis, a very fine palm, can be grown for a long time in a small pot or vass, is very like "A. Lutescens."

Areca Horrida, a narrow leafed variety, will grow without much care, and in any situation.

Areca Lutescens, a very graceful palm, propagates very rapidly by shoots grown in the vicinity of the parent stem ; wants shade.

Areca Madagascarensis, a hardy variety with narrow long leaves scantily distributed on the stem.

Areca Oleracea, hardy palm, can be grown out in the open ; requires careful treatment while young.

Areca Rubra, so called from the reddish tint of the stems and midribs of the leaves ; must have shade.

Areca Triandra, a large leafed variety, very distinct and handsome ; wants shade.

Areca Catechu, the betel-nut-palm of India, native of Ceylon.

Areca Verschaffeltii, also known as "Hyophorbe," an elegant variety, the reverse of the leaf stalk has a creamy yellow stripe, and the midrib of the leaves are of the same color.

Arenga Obtusifolia.

Arenga Saccharifera, the sugar palm of this country.

Arenga Wightii, a fine dwarf palm from the Coimbatore District, will grow easily and in any situation.

Astrocaryum Argenteum, (known as the silver palm), a very fine variety, native of Colombia with the leaf stalks and reverse side of the leaves covered with a silver white scurf, the upper surface being bright green, seeds not obtainable, must be procured in seedling plants.

Bowenia Spectabilis Serrulata, a remarkable Cycad, native of Australia, being the only plant of this family with bipinnate fronds, the leaves are large, handsome and serrated at the margins, very rare.

Calamus Ciliaris, a fine cane palm propagates easily.

Calamus Jenkinsoni, this cane is very handsome and throws up shoots very rapidly.

Calamus Ceylon, sp.	Calamus Roxburghi
(native cane	(native cane
of Ceylon.)	of Ceylon.)

„ Leptospodix	„ Java, sp.
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Calamus Malacca, sp.

<i>Caryota Sobolifera.</i>	<i>Caryota Obtusifolia.</i>
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„ Urens The	„ Cunninghami.
Sago palm,	
a native of	
Ceylon.	

Ceroxylon Andicola, the wax palm of South America.

Chamærops Fortunei, known also as “*Excelsa*” in some collections.

Chamærops Humilis, a very useful palm for decorative purposes.

<i>Chamærops Gracilis.</i>	<i>Chamærops Richardiana.</i>
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<i>Cocos Flexuosa.</i>	<i>Cocos Chilensis.</i>
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„ Nucifera is the Cocoa-	„ Plumosa.
nut palm of India.	

Cocos Weddelliana, rather tender, but one of the most elegant of the palm family, with

leaves of a rich green color, very suitable for table decoration, being a slow grower, and dwarfish in habit, wants shade.

Corypha Alata.

Corypha Australis, fine, useful palm, known also as "Livistonia Australis," very hardy.

Corypha Umbraculifera, native of Ceylon raised easily from seed, and will grow in any situation.

Cycas Circinalis, hardy Cycad, very common.

Cycas Media, a good Cycad, from New Holland producing a grand crown of foliage of large size which vary in different trees of the same species.

Cycas Revoluta. *Cycas Rumphii.*

Cycas Undulata, a very fine Cycad that will grow without much trouble.

Dæmonorops fissus.

Dæmonorops Palembangicus, a very elegant palm, a native of Java the young leaves are of a bright cinnamon-brown which gradually become deep green by age, requires shade.

Dæmonorops Plumosus, one of the most elegant and graceful of palms, very plume-like in appearance and admirably adapted for table decoration, must be grown in the shade.

Elæis Guineensis —This is the oil palm, a native of Africa, will grow in any situation

Euterpe Edulis.—This is the cabbage palm of Brazil and is also known as “*Oreodoxa Sancona*”

Geonoma Gracilis.

Geonoma Speciosa. *Geonoma Spixiana*.

Jabosa Spectabilis. (*Cocos Chilensis*)

Kentia Belmoreana. *Kentia Fosteriana*.

Kentia Canterburyana.

Kentia Wendlandiana, a very noble looking palm, with large handsome leaves serrated (or toothed) at the apex, native of Queensland, will grow in any situation.

Latania Aurea. *Latania Borbonica*.

Licuala Spinosa, propagate very rapidly by suckers or shoots and is very hardy.

Licuala Peltata.

<i>Livistona Australis.</i>	<i>Livistona Jenkinsii.</i>
„ <i>Chilensis.</i>	„ <i>Mauritiana.</i>
„ <i>Hoogendorpii,</i>	„ <i>Oliviformis.</i>
a very broad	„ <i>Rotundifolia,</i>
leafed varie-	known in some
ty.	collections as
	(<i>Subglobosa</i>)

Macrozamia Cylindrica, a nicely marked Cycad from Queensland must be grown in the shade.

Macrozamia Denisoni.

Macrozamia Perowskiana, very tender and very slow in growth ; requires shade.

Maximiliana Regia.

Oreodoxa “*Acuminata*” and “*Regia*” both are fine narrow drooping leafed palms, growing very easily and rapidly.

Phoenix Acaulis.

Phoenix Compacta dwarf Hybrid obtained by crossing two other *Phoenix*, sp. very tender.

Phoenix Dactylifera. The common date of India.

Phoenix Reclinata.

Phœnix Rupicola, the best kind of *Phoenix* yet discovered very graceful and ornamental and can be grown without any trouble whatever.

Phoenix Sylvestris, a sugar yielding palm native of Ceylon.

Phœnix Andamans, sp.

Pritchardia Grandis, a truly grand palm with very large handsome leaves; a young palm of this species was shown at our Horticultural Exhibition among other rare palms and plants which obtained a prize—it attracted much attention; it is scarce, but no collection should be without it as it is easily grown and can be obtained from Calcutta in seedling plants.

Ptychosperma Elegans. See *Seaforthia Elegans*.

Sabal Adamsoni.

Sabal Minor.

„ *Blackburniana*. „ *Palmetto*.

Seaforthia Elegans, a very good and easily grown variety, known also as “*Ptychosperma Elegans*,” a native of Ceylon.

Seaforthia Robusta. See *Areca Baueri*.

Stevensonia Grandifolia, also known as "Phoenicophorium Sechellarum" easily raised from seed.

Thrinax Elegans, a very showy palm, well suited for exhibition

Thrinax Glauca. *Thrinax Parviflora.*

Zamia Cylindrica. *Zamia Denisoni.*

Zamia Miquelii " (*Spiralis*)," a native of Queensland, has very elegant fronds, erect with a slight spiral twist, it is also known as "*Zamia Fraseri*."

A P P E N D I X.



COMPOST NO. 1.

FROM PAGE 17 OF JAFFREY'S HINTS TO AMATEUR GARDENING.

No. 1.—Stable manure, containing a large quantity of the refuse of grass on which horses have been fed, and which generally consist of roots, should be laid up to rot for some time

